

Psychological Bulletin

BILINGUALISM IN THE POST-WAR WORLD

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LANGUAGE AND LANGUAGES

The beginning of language marks the beginning of human history. For language is the instrument for social communication and cooperation. Without language it is difficult to visualize the possibility of any efficient group organization and functioning, and without the latter no human history could have begun. It is through language and its development, both in the race and the individual, that concepts and meanings arise to multiply and extend the scope of thinking. Through it the child inherits the experience of his forebears accumulated throughout the long centuries. By means of language, culture and civilization develop, human intelligence expands, human thought penetrates the past and visualizes the future, thus making human progress possible.

Whether all languages originated from one single form or whether they emanated from several sources, they have come through differentiation in the course of numerous centuries of human history, to assume many forms. At present it is estimated that some 1,500 different languages are employed by the 1,800 million population of the globe (20). According to Meillet (19) there are in the world more recognized languages now than ever before in human history, and Wells (46) hints at the possibility of an increase rather than of a decrease of this number in the future. An explanation of this phenomenon is to be found in the ideal of democracy since the Reformation and the principle of self-determination heralded after the World War I. The expansive and determined attempt of Ireland to resuscitate Gaelic in the face of tremendous difficulties,* the effort of the Jews in resurrecting their old language in Palestine and the Diaspora, and finally the official policy of the Soviet Union in creating alphabets for little known oral languages as well as the encouragement given for the development of all national languages and cultures in the Union are examples of this phenomenon.

* Dr. Douglas Hyde in his presidential address at the Celtic Congress in Dublin: "We are between the devil of England and the deep sea of America, and what with movies, books and newspapers, it requires some character to keep talking Irish." (45)

BILINGUALISM

Bilingualism, or the use of two languages by the same person, is as old as the first occurrence in human history of mutually understood traffic between two peoples speaking different languages. The proximity or coexistence of two or more languages in the same political or geographical area has resulted in bilingualism. Bilingualism in its more inclusive sense is to be found in almost every country in the world today. It occurs in the families resulting from mixed marriages; among government officials, business men and missionaries in foreign lands; and among educated people who learn a second language for use. In a much more definite form it is present in all countries where there are language minorities; in political units like Switzerland, Belgium, and the Union of South Africa which are constituted of equally recognized language groups; in countries of immigration and colonization; and in geographical areas where two languages or political units meet each other.

Bilingualism is a widespread phenomenon. In Europe today 120 languages are spoken (19), and the people speaking these languages are not enclosed in neatly drawn political or geographical boundaries. Outside of Portugal, Iceland, Lichtenstein, Monaco, and St. Marin there is no country or principality in Europe that does not have one or more language minority groups. In the United States it is estimated (1) that 25% of the population is bilingual because of the fact that the immigrants continue at least a partial use of their vernaculars for two generations of their residence in the adopted country. Canada is confronted with the problem of bilingualism by virtue of the presence in that country of a large number of recent immigrants and the French-speaking population in the province of Quebec. The increasingly large number of immigrants in recent decades in the South American countries has augmented the number of bilinguals in those territories. Into the African and the Asiatic continents with their teeming nations and languages have come during the past several centuries of political expansion and imperialism the European languages of English, French, Danish, German, Portuguese, and Spanish. An illustration of this linguistic kaleidoscope is the Magh in India, "The Magh" writes West (38, p. 14), "has Maghi as his home language; he needs Bengali for local commerce, English for higher education and administration, Burmese for his ancient traditions and literature."

The monoglot, especially the one from a small language group, is at a tremendous disadvantage: he must either share in the present civilization and therefore become a bilingual, or forego the benefits of it for the sake of his monoglotism. H. G. Wells (37, p. 248) stated the matter succinctly at the beginning of this century:

The inducements to an Englishman, Frenchman or German to become bilingual are great enough nowadays, but the inducements to a speaker of the smaller

languages are rapidly approaching compulsion. He must do it in self-defense. To be an educated man in his own vernacular has become an impossibility. He must either become a mental subject of one of the greater languages or sink to the intellectual status of a peasant.

Since the time of Wells' statement the compulsions to become bilingual have increased very greatly. The dimensions of the world have shrunk and continue to shrink daily; men, large numbers of them, are working, fighting, and will be living or travelling tomorrow in foreign lands thousands of miles removed from their country and their home language. Since the beginning of the century when Wells wrote his *Anticipations* two world wars have been fought, each causing large shifts of populations, each obliterating earlier political boundaries, and each resulting in greater interspersions of language populations. The progress since the beginning of the century in means of travel on land, sea and in the air, and the channels of communication by means of the printed word, the radio and the sound-pictures have been nothing short of miraculous. And the use of television is not far off. The number of commercial enterprises spanning several countries and even continents has increased; the number of international conferences, of international organizations and operations of one kind or another has been tremendously augmented and will continue to be so in the post-war world. All these trends will enhance and emphasize even more than heretofore the interdependence of men and nations; they will necessitate media for communication surpassing narrow ethnic boundaries; and they will further reduce the opportunities for a monoglot, especially if he belongs to a small language group.

A WORLD LANGUAGE

In the light of the trends described above, and foreseen by scholars as well as by philanthropists long ago, several proposals and attempts have been made to create an international medium of communication—a world auxiliary language. These proposals may be classified into three categories:

1. Wider extension of an existing national language—English, French, German, Spanish, Bengali, etc.
2. Creation of an artificial language based on the elements of some existing languages—Volapük, Esperanto, Ido, Romanal, Latino sine flexione, Novial, Occidental, etc.
3. A simplified form of an existing language—Basic English, Basic Chinese, etc.

Of these various schemes Basic English recently received a tremendous boost from a highly influential source. Winston Churchill, the Prime Minister of England, in his speech at Harvard University on September 6, 1943 expressed himself thus:

But I do not see why we should not try to spread our common language even more widely throughout the globe, and without seeking selfish advantage over any, possess ourselves of this invaluable amenity and birthright.

Some months ago I persuaded the British Cabinet to set up a committee of ministers to study and report upon Basic English. Here you have a plan—there are others—but here you have a very carefully wrought plan for an international language capable of very wide transactions of practical business and of interchange of ideas. The whole of it is comprised in about 650 nouns and 200 verbs or other parts of speech, no more indeed, than can be written on one side of a single sheet of paper. (46)

Within the month of this announcement Dr. Lin Mou-sheng, a Chinese scholar asked a pair of disarming questions:

Why Basic English? Why not Basic Chinese? Chinese is the mother tongue of 450,000,000 people. Hardly more than 200,000,000 people can claim English for their own. There is no easier, simpler language to learn than the simplified 'basic' Chinese of 1000 characters which has made possible China's huge spread of literacy in recent years. (47)

Dr. Mario Teixeira de Freitas of the Brazilian government stating the case for Latin America says: "Only through Esperanto will we realize unity and confraternity under the very best spiritual conditions." Dr. Freitas fears that the adoption of any existing language for world use would give undue superiority to that particular language and culture and thus create psychological barriers in international relations (46).

What the reaction of the Kremlin will be to making Basic English an international auxiliary language we do not yet know.

Basic English or "English almost without tears" as Guèrard puts it (10) has been seriously criticized by scientific linguists like West, Swenson, etc. (41). Its adoption as an international language will be resented by non-English speaking peoples as smacking of Kiplingesque imperialism. This same resentment will ensue no matter what existing language is proposed as the international auxiliary language.

What of the neutral or artificial languages? Esperanto is the only one of the several proposed languages that has had any appreciable following among the intellectuals of various countries. However, Dr. Zamenhof's scheme has not been spared criticism, and its present state is not very hopeful judging from the accounts on the subject (10).

H. G. Wells in a recent article (46) doubts the validity of the arguments for an auxiliary language and concludes his interesting article thus: "So I submit, melud the Public, I submit, melud, my case against this Auxiliary Language idea. What can be said for it, I cannot imagine. Perhaps someone will Esperant?"

TOWARDS GREATER BILINGUALISM

It is doubtful if for a long time to come we shall have any truly international auxiliary language. The world is not ready for the acceptance

of one. It is more likely that some of the existing languages, like English, French, Russian, Chinese, and Spanish will have wider use than before. In this connection the following news item (46) from the wires of the United Press dated from London, July 24, 1943, is of particular interest:

A committee representing the Ministries of Education of Belgium, Czechoslovakia, Greece, the Netherlands, Norway, Poland, Yugoslavia, and the Fighting French today recommended the establishment of English or French as a world language after the war with a slight leaning in favor of English.

The Committee was organized on the initiative of the Netherland Minister of Education, Gerritt Boljestein. After studying the need for a world language to facilitate post-war world collaboration, it suggested:

1. That English or French be compulsory subjects in higher forms of elementary schools of the European Allies.
2. That the teaching of English be strengthened as far as possible in all schools in view of the important part it will play in international intercourse.
3. That all publications intended for international reading be published either in English or French, or be accompanied by English or French summaries.
4. That only English or French be used at international meetings.

There are two conflicting sets of forces the interplay of which in the modern world will necessarily result in bilingualism for larger numbers of people. On the one hand we have strong forces which lead towards world unity and international cooperation over and beyond ethnic and national boundaries; on the other hand, because of the principles of democracy and self-determination, we have strong forces tending to preserve and strengthen the individuality and uniqueness of separate ethnic and national groups. Language is one of the most important sources by and through which the distinctive culture of any given ethnic or national group can be kept and continued. No ethnic group will willingly and without a struggle give up its language, especially in its native habitat. The vernaculars of the world will continue, and a few more of the oral languages may find an alphabet and thus be added to the already long list of current languages. Any auxiliary language must be in addition to the vernaculars. It follows, therefore, that there will be a much larger number than heretofore of people who will become bilingual.

In the light of this evident trend towards greater bilingualism it will be of help and interest to the social scientist to examine the findings on a number of problems related to bilingualism.

PROBLEMS RELATED TO BILINGUALISM

Speculative thinking has attributed great advantages as well as great disadvantages to bilingualism. Some writers on the subject have extolled the benefits of bilingualism in sharpening the child's mind, in extending his mental horizon, in making it easier to learn a third lan-

guage. Others have decried the evil effects of bilingualism which they believe results in mental confusion, in inadequate mastery of either language, and in cultural uprootedness (*déracinement*). One writer (15, p. 18) goes so far as to declare: "If it were possible for a child or boy to live in two languages at once equally well, so much the worse for him. His intellectual and spiritual growth would not thereby be doubled, but halved."

During the current century, and particularly after 1920, experimental methods were applied to the investigation of this baffling problem. And, as usual, careful scientific inquiry by breaking the problem into its many parts, disclosed bilingualism to be not a simple condition about the effects of which sweeping generalizations could be made, but a complex problem with many aspects about each of which only the scientist's guarded and carefully limited generalizations would be permissible.

A. Measurement of Bilingualism

Bilingualism is not a uniform phenomenon; not all bilinguals use their two languages with equal degree of efficiency, and the degree of efficiency will vary in the life of the very same individual. For purposes of scientific study the term "bilingualism" must be defined, delimited, and, if possible, measured. The attempts at the measurement of bilingualism may be classified into three categories:

1. *Background Questionnaires.* Prescott's report to the convention of the New Education Fellowship in Nice, 1932 (4) described a bilingual questionnaire of 20 items, some of which follow:

1. What is the first language which you spoke?
2. What language does your father speak to your mother usually?
6. In what language does your father speak to you usually?
7. In what language do you usually speak to your father?
15. Are there in your home newspapers and magazines which are not in the English language?
16. Do you read them?
20. Have you been in a school where the teachers did not always speak in English with the pupils? What language did they use?

One point is assigned to each item indicating use or influence of the foreign language, and the sum of these points is the index of the foreign language influence in the family background of the child.

Hoffman (11) in 1933 developed his Bilingual Schedule which consists of fourteen questions, including altogether thirty-seven items purporting to determine the amount of the bilingual background of the child. Not only the "expressive," or speaking, but also the "impressive" or hearing and reading, aspects of the child's language situation are taken into account. The following are typical questions in the Schedule:

Question 1. Do the following speak to you in any language other than English?

(a) *Father* Never Sometimes Often Mostly Always

(b) *Mother* Never Sometimes Often Mostly Always

The same question is continued for grandfather, grandmother, brothers and sisters, relatives.

Question 2. Do you speak to the following in any language other than English? (The above six categories are repeated here.)

Other questions pertain to newspapers, magazines, books, letters received at home, written, or read by the members of the family or by the child himself. The questionnaire is scored by assigning numerical values of 0, 1, 2, 3, 4 to the items respectively of *Never*, *Sometimes*, *Often*, *Mostly*, and *Always* as underlined by the respondent. The numerical total thus received is then divided by the total number of items attempted by the child, and the quotient, multiplied by 10 in order to get rid of the decimal, constitutes the child's bilingual score. Hoffman reports a validity coefficient of .82, and a reliability coefficient of .92 (split-halves) for his questionnaire.

2. *Association Techniques and Knowledge Tests.* M. Gali of Spain (3) has proposed two methods for the measurement of degree of bilingualism. The first of these methods is a test of immediate verbal memory. Two parallel series of 10 words—10 in Spanish, and 10 in Catalan, are orally presented to the child, each series being read three times with a fixed time interval in between the words. At the end of the presentation the children are requested to reproduce on a piece of paper the words which they are able to recall. In this manner the degree of familiarity with either language is measured.

A second method proposed by Gali (3) uses the chain association technique. Eight words, consisting of four nouns and four adjectives in Spanish and in Catalan are given alternately and the child is asked to give within a fixed time any words in either of the two languages that come to his mind.

Miss Hywella Saer (3) has used a slightly different and quite an ingenious association method to measure the affective value of words in the two languages of the bilingual child. Fifty words representing situations, persons, objects, and actions that normally are part of a child's world at the age of three are selected. These fifty words in English and their equivalents in Welsh (making a total of one hundred words) without any definite order of presentation as to the English or Welsh words are given to the child individually. The responses given in either language are noted. Account is taken of the association time for each word in each of the two languages. The association time for the Welsh word is divided by the time of the association for its equivalent in English. This quotient is equal to 100 when the association times for the two responses are equal. A score less or more than 100 will indicate the greater or smaller affective value of the situation, ob-

ject, person, or action in one or the other of the two languages. A quotient of approximately 100 will show that the child is truly bilingual in reference to the particular situation, object, or person denoted by the word.

Zubin (39) in New York has experimented with "An objective test of bilingualism," which is a test of knowledge of common household expressions in the Italian and the Yiddish languages. Each foreign expression, collected from idioms and phrases used in the home and also present in the primers in the two languages, is followed by three choices in English, and the task of the child is to check the English phrase corresponding to the foreign language expression. In addition to this knowledge test the child is asked some background questions similar to those in the Prescott and Hoffman questionnaires.

3. *Rating Scales.* Dr. Malherbe (17) of the Union of South Africa believes that bilinguality represents a continuum extending from 0 to the ideal 100%. The question should not be "Is a man bilingual or not bilingual?" but "How much, or to what extent, is he bilingual?" And this "how muchness" can be graded like steps on a ladder. He proposes to describe bilingualism in six stages on basis of the extent of a person's proficiency in the second language, thus:

Stage 1. At this stage a man must be able to follow intelligently an ordinary conversation, speech or sermon in the second language, both in its written and spoken form.

Stage 2. In addition to the above, also an ability to converse intelligently and with a fair amount of fluency is required.

Stage 3. Ability to write the second language correctly is required in addition to 1 and 2.

Stage 4. An advanced stage of the abilities represented in stages 1, 2, and 3. "Here we want not only a correctness on paper, but a correct and convincing power of expression, both in writing and speaking in the two languages. Speech must be fluent and both accent and idiom must be such that they can serve as fit models for growing minds to imitate."

Stage 5. "This stage is represented by the attainments of those selected few, who both as users and as students of the two languages would probably reach the upper ten percentile in both languages."

Stage 6. "At the top end of this scale of bilinguality we have, of course, the unapproachable ideal, viz, 100% perfection in both languages."

The various methods so far proposed have been for the measurement of bilingual background or of the efficiency of the bilingual person in the two languages. Arsenian (1) proposes that in addition to a measure of bilingual background four other evaluations of the bilingual situation be made and stated in objective terms. These are:

1. The degree of similarity or difference between the two languages that the bilingual person possesses.

2. Age when the learning of the second language occurred.

3. Method of learning—informal or formal, at home or in school, by direct or indirect methods.

4. Attitude toward the second language whether favorable or unfavorable.

B. Bilingualism and Mental Development

The literature pertaining to the intellectual development of the bilingual child is voluminous, and a detailed presentation will not be made here. Those interested may refer to summaries by Arsenian in 1937 (1) and by Spoerl in 1942 (30). In general the pattern of these investigations has been to administer tests of intelligence to bilingual and monoglot children and to compare the results. Some of the investigators have used only verbal tests of intelligence, others only non-verbal or non-language tests, and still others have administered both verbal and non-verbal tests to the same groups of children. These investigations have been conducted on from nursery school and kindergarten to the college and university levels, with most of the studies covering the elementary school period. Both individual as well as group tests of intelligence have been used, and in a few instances the verbal intelligence test has been administered in the two languages of the bilingual child. The determination and the measurement of the degree of bilingualism of the child has been variable: in some instances the performance of the bilingual child has been compared with that of his monoglot contemporaries of his own natio-racial group, at other times with a different or a mixed group.

A few of the studies are longitudinal—the observations and the testing having been made on the same child at different periods of growth, most of the studies are cross-sectional—the observations and testing having been made at one point in the child's development. A few investigators have used the correlational technique in seeking the relationship between degrees of bilingualism and intellectual ability, most researchers have satisfied themselves with a comparison of averages and variabilities and the statistical significance of differences between bilingual and monoglot groups.

Because of these circumstances the results of these studies are not uniform, however, after examining nearly one hundred investigations in this country and abroad the following summary of the findings can be made:

1. Bilingual children as compared with monoglot children of the same age and environment are neither retarded nor accelerated in their mental development. This conclusion is especially evident when the two groups are compared on non-language tests of intelligence.

2. When verbal tests of intelligence are used for comparison in the majority of cases, the bilingual children fall short of their monoglot contemporaries, this disparity being greater the more verbal the content of the test is. This generalization must however be limited by two observations:

a. On the whole, the older the bilingual child and the higher the level of his educational attainment, the smaller is the discrepancy between his verbal intelligence test performance and the performance of a monoglot of the same age or educational attainment.

b. The verbal intelligence tests show that the apparent retardation of bilingual children varies from place to place and from group to group. Bilingual children in urban areas, like the Welsh children in the cities and the Jewish children in London or New York, show either no retardation or a slight superiority to the norms of monoglot children, while in rural Wales the Welsh children, and in the southwest of the United States the Spanish-speaking children according to these verbal intelligence tests show a serious handicap.

This summary points to the conclusion that bilingualism neither retards nor accelerates mental development, and that language handicap is most likely the factor responsible for the discrepancy between the performances of bilingual and monoglot children on verbal tests of intelligence.

C. Bilingualism and Language Development

Several individual studies of language development of bilingual children have been made by parents. The classical study in this field, and the most careful, is that of Jules Ronjat (24). In 1913 Dr. Ronjat reported in great detail on the linguistic development of his bilingual son, Louis. From the time of Louis' birth, his father spoke French and his mother spoke German invariably in the presence of the child or in speaking to him after he was able to talk. According to Ronjat, Louis' accent, pronunciation, and knowledge of the two languages were not retarded in any way because of his bilingualism. In 1923, ten years after the publication of his monograph, Dr. Ronjat in a private communication to Dr. Michael West (46: 59-60) was able to confirm his earlier statement regarding the normal development in the two languages of his son, Louis.

Several other developmental studies of this type summarized by Spoerl (30) seem to indicate that whenever the sources of the two languages were kept distinct and the manner of presentation remained consistent during the early developmental period the situation was normal. However, when the process was interfered with, as when the mother spoke sometimes German and at other times English [Leopold (16)], or when child was moved from a bilingual to a unilingual environment, or vice versa [Volz (33), Smith (27), (28), Kenyeres (14)], difficulties arose, such as refusal to talk in one of the two languages learned, or some confusion and retardation in language development, at least temporarily. In this connection one should bear in mind the situation in numerous second generation immigrant homes in the United States, where the parents speak English to the child while the grandparents

consistently use the language of the old country, with no permanent ill effects on the child's language development.

Two studies of the language development of preschool children give somewhat divergent results. McCarthy studying children from foreign language homes in the United States concludes (18, p. 66): "... the hearing of a foreign language in the home does not seem to be a handicap in linguistic development as it is measured by the mean length of response, which when applied to larger groups has proved a very reliable index."

Smith studying an extensive sampling of children in Hawaii from Chinese, Filipino, Hawaiian, Japanese, Korean, and Portuguese-speaking homes finds serious language handicap in children from two to six years of age. Two of her conclusions are pertinent:

The children in Hawaii were compared with a monolingual white American group previously studied. They are found to use more exclamatory and slightly fewer interrogative sentences, and to make much less frequent use of complex and compound sentences. Sentences that serve merely to name an object or person continue to a later age than with monoglot children. However, age trends are found to be similar, for exclamatory and naming sentences decrease; questions, answers, and complex and compound sentences increase with age (29, p. 268).

(And again.) The evidence, although insufficient, suggests that pidgin English is more responsible for incorrect English and bilingualism for the overuse of interjections, short sentences, immature type of questions when classed as to meaning, and lack of complex sentences (29, p. 272).

While the difficulties encountered by the bilingual child in his early period of language development are of interest, and must be provided for in an educational program, it is of greater interest to know whether or not these difficulties are permanent. As Braunschhausen (5) remarks: "Si l'on veut définitivement établir le bilan du bilinguisme, il faut organiser des enquêtes et des expériences, non pas sur le bilinguisme en *statu nascendi*, mais le bilinguisme à l'état achevé."

It is necessary, therefore, to canvass the studies of the language development of bilingual children on successively higher educational levels. Most such studies cover the elementary school period. There are a few on high-school level, and very few indeed on the college or more adult levels. The usual method in these studies has been to compare the vocabulary size of the bilingual child with that of his monoglot contemporary. A few investigators, notably Gali in Spain and Frank Smith in Wales, have analyzed letters and compositions of bilingual persons. These studies have been summarized by Arsenian (1) and Spoerl (30) and will not be presented here in any detail.

The results of these studies are not uniform. Certain of the studies, notably those in Puerto Rico, in the southwest of the United States,

and in rural Wales show rather serious vocabulary handicap for the bilingual child in both languages. Other studies, notably those in urban centers of the eastern part of the United States, show equality with monoglots, or in a few instances even a larger size of vocabulary in the English language by bilinguals as compared with monoglots. The explanation of these apparently contradictory findings is to be sought in the following:

1. The higher we go on the educational level the more opportunity does the bilingual child have to catch up with the monoglot in his knowledge of the vocabulary of the dominant language. Terman's finding is of great interest in this connection. He discovered (34) that for the bilingual student, vocabulary is lower than mental age up to the third or fourth grade, but that after twelve years of age vocabulary is equal to mental age. This result receives some corroboration in the findings of Decroly in Belgium (8), and Saer in Wales (25).

2. The higher we go on the educational level the greater the selection of bilingual students, since, as the New York Regents inquiry shows, a larger percentage of bilingual children leave school than of monoglots (9). Intelligence and language facility are probably two of the factors in this selective process.

3. There is truth also in the statement of the Canadian committee appointed to inquire into the conditions of the schools attended by French-speaking pupils, namely, that proficiency in the use of one language is assuredly no barrier to securing equal proficiency in the other *if proper methods of organization and instruction are followed.*" (42, p. 220) (italics by the writer)

On the whole, these studies show a language deficiency for the bilingual child. However, the extent and period of such deficiency seem to depend on certain factors, such as, the extent of educational opportunities, the intelligence of the bilingual children, and the methods of organization and instruction in schools.

D. Bilingualism and School Achievement

The bilingual's deficiency in language reflects in his school performance, especially on the elementary school level. Studies reported from Belgium [Toussaint (35)], Czechoslovakia [Couka (40)], Canada (42), the Philippine Islands (43), Puerto Rico (44), and a number from this country [summarized by Spoerl (30)] are almost unanimous in showing lower performance by the bilingual child. This deficiency of the bilingual is most apparent in verbal subjects, such as reading, history, and geography; and is much less apparent in non-verbal subjects, such as arithmetic and science. On the high school level—there are few satisfactory studies—the differences seem very slight, and on the college level they apparently disappear. The most satisfactory investigation on the college level is that of Spoerl, who equated two groups of Freshmen—bilingual and monoglot—as to age, sex, socio-economic status and intelligence, and compared their performances on the Nelson-Denny Reading and the Purdue English Placement tests, in addition

to examining their school grades and progress. Dr. Spoerl (32) concludes her study with the following statement:

Summarizing the conclusions based on the various tests which were administered, it becomes clear that at least at the college level, there are no continuing effects which stem from a bilingual childhood and which show themselves in the academic records, vocational choices or English ability of bilingual students. Neither does bilinguality seem to have a significant effect on the performance of college age students on a verbal test of intelligence. If there were a bilingual handicap in their childhood, it has certainly become stabilized by the first year of college.

It must be borne in mind that in the studies regarding school achievement, especially those made in the United States, the language situation is such that the student is in the process of losing one language—his vernacular, and of learning another—the dominant language. A truly bilingual situation where the two languages are on equal footing is not encountered. Fortunately one study exists, that reported by Professor Bovet (4), where the latter situation obtains. M. E. T. Logie, the director of a school in the Union of South Africa, by special permission from his government, conducted an experiment in his school as follows. The pupils in his school were given bilingual instruction, the same lesson being taught in Afrikaans, and then recited in English, or vice-versa; the same teacher taught the subject in both languages without favoring either one or the other. It was also seen to that the children in playing games were mixed rather than divided into linguistic groups. The affective as well as the purely language learning factors were therefore constant for the two language groups. After four years of this experience the children were tested as to their knowledge of the mother tongue and of the second language, both, also in arithmetic (this subject being selected as a test for logical thinking), and in geography. The results of these tests were compared with the results of the same tests taken by pupils in unilingual English and Afrikaans schools. On none of the tests were the bilinguals shown to be inferior to their unilingual contemporaries. This experiment, more crucial than any others, shows that bilingualism per se need not be a cause for school retardation even in the elementary school.

E. Bilingualism in Relation to Speech and Other Motor Functions

Blanton and Blanton (2) have had experience with many bad cases of stuttering which involved bilinguality. They do not claim, however, that bilinguality is the cause of stuttering. Travis, Johnson, and Shover (36) claim that the chances are 98 to 100 that the bilingual child will stutter more than the monoglot. However the percent of stuttering in

the population they examined was only 2.8% so the occurrence of it among the bilinguals could not have been very frequent.

Henss (40) reports the case of his own son, who grew up in Holland and used both of his hands equally well up to the fourth year, when he was sent to a German school. His language development in German was rapid. At this time he started a preference for the use of his right hand. Later, entering the German school again, he became right-handed. During this period he spoke an equal amount of German and Dutch, and began to stutter. This continued until he left Holland and forgot the Dutch language.

Saer, Smith, and Hughes (26) in Wales examined 679 bilingual and 281 monoglot children as to dextrality. The children were asked to show their right hand, left ear, or in a picture to show the right hand, ear and foot. In both urban and rural districts, reversals, confusions or hesitations were more frequent among the bilinguals than among the monoglots. Also 339 unselected children in an urban school were tested as to their sense of rhythm. The children were asked to tap and sing "la." The results were inconclusive for the tapping test, but in the "la-ing" test the monoglots were superior at each age from 7 to 12.

This entire field of the relation of bilingualism to speech or motor disorders remains unsatisfactorily investigated. The few studies reported seem to indicate certain difficulties, probably of an emotional nature, which may or may not be due to bilingualism. However, no definite conclusions can at present be deduced.

F. Bilingualism in Relation to Personal and Social Adjustment

In most bilingual situations the two languages involved do not carry equal social prestige; one of the languages is usually more dominant, carries greater social approval, is the representative of the "superior" culture. This situation obtains especially in countries of immigration and colonization. The question arises whether in such situations the bilingual person does not suffer from a sense of inferiority or inadequacy, whether or not he is socially frustrated, how well he is able to accept himself and his social group, how securely anchored he is in the two cultures represented by the two languages.

There are many speculative claims but little experimental evidence. A study by Darsie (7) using teachers' ratings as measures of pupil adjustment finds the Japanese children more stable emotionally than the American children in the same schools. Pintner and Arsenian (23) report zero correlation between degree of bilingualism as measured by the Hoffman Scale and school adjustment as measured by the Pupil Portraits Test. The population in this study consisted of 469 native-

born Jewish bilingual pupils of the 6th and 7th grades in a New York City public school.

The most noteworthy study in this field is that of Dr. Spoerl (31). She equated two groups of college freshmen on mental ability, age, sex and socio-economic status and then studied intensively the personal and social adjustments of the bilingual and the monoglot groups using a number of good measuring and analytical devices of adjustment. These were: the Allport-Vernon Study of Values, the Bogardus Test of Social Distance (modified), the Kent-Rosanoff Association Test (modified), the Bell Adjustment Inventory, and the Morgan-Murray Thematic Apperception Test. Her conclusion of this study (31, pp. 56-57) is worth quoting at length:

Our conclusion, then, is that the emotional maladjustment of the bilingual student, insofar as it expresses itself in terms of reactions to social frustration, and particularly in terms of family disharmony, is the result of the culture conflict to which the native-born children of immigrants are subjected. But this culture conflict is complicated by the bilingual environment. Thus it is that bilingualism enters into the situation, not in its intra-personal aspects, but rather as a symbol of one of the environmental factors converging upon the second generation. Most of the emotional maladjustment of the bilingual student is environmentally determined, and is not the result of mental conflict engendered by the complexities of thinking or speaking in two languages. This is true of the social maladjustment, the lack of harmony in the home situation, and the lack of identification with the present environment (coupled with a rejection of the cultural background of the parents), all of which tend to characterize college students who are bilingual.

One finding remains, however, which does not fit into this culture-conflict complex. That is the finding, primarily from the Association Test, of a significantly larger number of reactions on the part of bilingual students in terms of the *act of speech* to the word *language*; and in terms of the *act of understanding* to the word *understand*. These suggest that, although at the college level bilingualism, as such, is not affecting the students' expressive power (as evidenced by his control of English, his almost equal vocabulary, and his academic performance) there is in his mental organization a residual effect of the emotional turmoil and mental effort which must have been present in the early days of his school career when English was not, for him, a facile medium of expression.

The social psychology of bilingualism is most interesting as well as most important because of the following facts. Language is the medium of culture; in addition to being a code it is also a tradition; it embodies in itself the sufferings as well as the aspirations of a nation. As language represents one of the most potent forces of national existence, its encounter and struggle with another language calls forth an interplay of emotional forces which result in the pathos and drama of human life. Here we are dealing not merely with the acquisition of two languages in place of one, but with the complex psychological and sociological

phenomena of a culture conflict. The protagonists of a *neutral* international auxiliary language have here a strong argument in favor of their scheme. A neutral language, if such can be found, is devoid of tradition; it is a code, and imposes itself equally on all languages and cultures without invidious distinction. A living language, no matter which, necessarily brings with it a tradition foreign to other languages and cultures, unavoidably insinuates privilege and superiority of one group as against others, and creates social-psychological conflicts and barriers.

G. Learning a Second Language

The problem of bilingualism raises the old question of the optimum time and method for the successful learning of a second language. Practice with regard to both time and method varies greatly from place to place.

Prior to the World War II, in the French possessions of Algeria, Cameroon and Togo, Morocco, Equatorial and West Africa, Syria, Lebanon, and Tunisia, French was the sole medium of instruction from the earliest grade on, and the vernaculars were disregarded, or in some places prohibited. In Indo-China the vernacular was used as the medium of instruction in the primary schools (ages 7 to 10) and French was offered as an optional subject. In Madagascar both French and Malagasy, the vernacular, were used interchangeably as media of instruction in all schools.

In the British possessions the practice is variable. In general, the vernaculars are used as the medium of instruction in the earlier grades and English is introduced gradually, first as a subject of study and later as a medium of instruction, on the secondary school level, as in India. In the Union of South Africa and in Ceylon one finds three distinct sets of schools: vernacular medium, English medium, and bilingual. Further variations are to be found in the Belgian Congo, the Dutch East Indies, in Palestine, Egypt, some European countries with large language minorities, and in the Soviet Union. In the western European countries and in the United States so-called foreign languages are included as subjects of study in the secondary school curriculum.

This great variation in the time as well as in the method (perhaps the more variable) of instruction is itself an indication of a lack of knowledge as to the optimum time and method for the study of a second language. Here is a challenge to educators and psychologists.

On the whole, our practices in the teaching of a second language seem to be based on the assumption that language-learning is a conscious reasoning process—an assumption that probably comes from the logicians and grammarians. It is time to question this assumption and to test its validation experimentally.

There is general agreement that the earlier the acquisition of a second language the stronger its impression upon the individual and the more effective its use by him. Judd (13, p. 137) says:

The person who acquires a second language late in life always finds himself handicapped. He is, in the first place, defective in pronunciation. The reason for this is that the sounds of his native tongue monopolize his habits of articulation. . . . On the other hand, a child can acquire two languages in early youth and make a complete success of both. The child is plastic in his habits.

Palmer, whose contributions to the method of language teaching are well known, writes (21, p. 40):

What evidence is afforded by bilingual children who have learned two languages simultaneously, children of mixed parentage, children whose care has been entrusted to foreign nurses, children who live abroad with their parents? In nearly all the cases of which we have any record it would appear that the two languages have been acquired simultaneously without mutual detriment; there has been practically no confusion between the two, and the one has had little influence on the other. Both have been acquired by the natural language—teaching forces.

In this connection mention should be made of the experimental school of language-learning in Madrid. Here children are taught the Spanish, English, German, and French languages from kindergarten on. On the basis of the experience of four years of this school Castillejo (6, pp. 9-10) reports: "So far, the children of ten and eleven years have been sent to take examinations in other schools, and this test has enabled us to verify that they are not in the least retarded compared with children of the same age, who have received twice the number of hours of teaching in the mother tongue."

The evidence from the studies of bilingualism points in the same direction. Bilingualism, that is, simultaneous learning of two languages from infancy, has no detrimental effect on a child's mental development provided the following conditions are observed:

1. That at the earliest stages of the child's language development a consistent method of source and presentation of the two languages is observed, i.e. *une personne, une langue*.
2. That psychological barriers or negative affective conditions, such as inferiority or superiority of the languages involved, or national and religious animosities sometimes associated with language are absent, and
3. That the languages are learned by spontaneous, informal or play methods, and not by formal and task methods.

Be it observed that we simply don't know the limits of children's achievements when appropriate methods of learning are practiced. It is certainly a tremendous advantage to any person, young or old, to know two languages, which make it possible for him to be in facile contact with his own immediate environment or cultural group, and also to go beyond the circumscribed boundaries of his native tongue and lay hold

of the treasures to be found in a language more widespread over the world, and a better-equipped carrier of the thoughts and contents of modern civilization.*

Through the contacts that the more widely used language permits in literature, in science, in modern living the child growing up under the shadow of the Himalayas or on the borders of the Sahara, in the snow covered steppes of Siberia or in the hot climate of the valley of the Amazon, may at once become the inheritor of the wealth of nations—a commonwealth of ideas which will extend immeasurably the horizons of his thinking and unite him with the rest of the world in, we hope, peaceful living.

H. Bilingualism and the Political State

From very ancient times down to the 18th century the concern of the state regarding languages other than the official language used within its jurisdiction consisted merely in making provisions for the translation into these other languages of its edicts and official announcements for the information of all its peoples. The schools were run by religious and other non-state organizations, and were left pretty free as to medium, content, or method of instruction. The idea of a "national education," and state provision for and control of education did not come until 1763, after the suppression of the Jesuits in France. After that date the state's interest in education and hence in the matter of language instruction and bilingualism became paramount. Not long ago a Belgian government was forced to resign on the question of introducing the Flemish language in the University of Ghent (20).

The practices in different states in the matter of bilingual education may be summarized under four categories:

1. The language of the community is the language of the school. Switzerland is the protagonist of this principle. Not the canton, which may be bilingual or trilingual—not the federal government, which is trilingual—but the *commune* will decide the language that must be taught in school. The child, whatever the language in his family, must study in the language taught at the school which he attends.

2. The language of the political state is the language of the school. This is predominantly true of the French colonies and protectorates, as indicated in the previous section.

3. The language of the family is the language of the school. The child must study in the language of his family. This is the principle of the Union of South Africa, where one finds some schools where the language is Afrikaans, others where the language is English, and still others where there are parallel grades for the two languages, as well as some where the same class is taught by the same teacher alternatively in the two languages.

4. The parents decide what language the child must learn and, therefore,

* According to the testimony of Huxley (12) most African languages, including Swahili, which in respect to area over which it is understood is one of the dozen of major languages, are deficient in abstract terms. It will take generations before these languages become adequate media for modern civilization.

the school which he will attend.* According to a dispatch to *New York Times* (August 5, 1938) the Rumanian government subsidizes minority schools and permits the teaching in these schools to be carried on in the languages of its minorities, which constitute 30% of the country's population.

These practices are not uniform in all countries. In Belgium, a combination of principles 1 and 3 are followed. The country has been divided into three linguistic zones; in the Walloon and the Flemish speaking zones the Swiss principle is followed, in the bilingual zone comprising the capital and a few other areas the South African principle is followed (4). In Soviet Russia the language policy followed depends upon the nationality. Four groups of nationalities are recognized in Russia and the language policy varies (22), as follows:

1. Small and dispersed tribes with no alphabet and no national culture use Russian as the medium of instruction.
2. Nationalities with no alphabet and no national culture, but which live together in compact communities and use their native language in their daily life, carry on the primary schools in the vernacular, and the secondary and higher schools in Russian.
3. Large nationalities with their own languages, which have developed their own cultured classes, conduct the primary and the secondary schools in the vernaculars and the higher schools in Russian.
4. In large nationalities which inhabit a compact territory, and which have their own culture and historical traditions, in all educational institutions, including the universities, the vernacular is used as the medium of instruction. Only five nationalities belong to this group: Russians, Ukrainians, White Russians, Georgians, and Armenians.

These variations in the principles and practices followed by different states in their handling of the bilingual problem are indicative of a lack of knowledge and of general agreement as to the optimum time and method of language learning for the child. In the absence of tested and accepted knowledge, opinions dictate the policies, and undoubtedly political considerations exercise their weight on these opinions. Bilingualism is and should be primarily an educational problem, and the problem must be solved by experimental methods open to the educator and the psychologist. Without question, the problem of bilingualism is very complex, and the research required to untangle its complexities will require large resources in money, time, and above all in interested and capable workers.

In the following section a list, not exhaustive, is given of problems in bilingualism awaiting experimental and other methods of study and research.

PROBLEMS FOR RESEARCH

I. Language in general

1. Historical study of single languages: their origin, development, and present status.

* The parents do not always choose the language of the family as the language of instruction for the child.

2. Comparative study of existing languages; their similarities and differences as to roots, word formation, syntax, grammar, orthography. Possibility of a scale or scales for the measurement of relatedness of languages.

3. Geographical and statistical study of languages as to their spread and overlap.

4. Studies in connection with the simplification of existing languages, like Basic English, Basic Chinese, Modern Turkish (especially in orthography).

II. *International Language*

1. Critical evaluation of the claims of the proposed international auxiliary languages.

2. Criteria for an international language (See the work to date of Iala-International Auxiliary Language Association).

3. What are the difficulties to be encountered in introducing an international auxiliary language? What are the forces for and against the introduction? Will such a language be for the masses or for the classes?

4. Can there be an international auxiliary language based on all languages of the world—a language which will be as fair for the Chinese as for the French child to learn?

III. *Language Learning*

1. What is the optimum time for learning a second language?

2. What methods are most effective for the learning of a second language?

3. Is the learning of a second language an unsurmountable burden for the intellectually inferior child? What intellectual level of ability is necessary?

4. Does the learning of a second language facilitate the learning of a third? Any relationship between the languages involved?

5. Can adequate tests for language aptitude be constructed?

6. What is the psychological process of the acquisition of language by the child?

IV. *Bilingualism*

1. A scale for the measurement of actual bilingualism in individuals and groups.

3. Developmental studies of bilingual children.

4. Comparison of monoglot and bilingual authors as to excellence in writing and clarity of thought.

5. Case and questionnaire studies of bilingual persons as to their language use, expression, difficulties, felt advantages.

6. Study of compositions of bilingual pupils as to clarity of thought, effectiveness of expression, language errors, introduction of peculiar expressions of one language into another.

7. Measurement of vocabularies of bilingual and unilingual children. Does the bilingual child catch up with the monoglot? At what age? Under what methods of teaching the languages? What is the extent and nature of the vocabulary handicap, if such there be?

8. Investigations of bilingualism and school achievement, especially along the pattern of Logie's experiment in the Union of South Africa.

9. Bilingualism in relation to speech disorders. Is bilingualism a causal factor? How involved?

10. Bilingualism and motor functions—handedness, rhythmic sense, balance, etc.

11. Is bilingualism a causal factor in personal maladjustment? Is a feeling of inadequacy or inferiority caused by bilingualism per se?

12. Is the language of the mother or the father (in mixed marriage families) more dominant with the child?

V. *The Social Psychology of Language and Bilingualism*

1. Is one language necessary for cultural cohesion or national solidarity?

2. How does language facilitate or inhibit cultural assimilation or accommodation?

3. What are the psychological barriers in social relations when people speak different languages? When both speak the same language, it being the mother tongue of one and a second language to the other?

4. What are the extent and nature of the emotional values of words and expressions in a language native to one and foreign to the other person?

5. In what kind of cultural juxtaposition do equilateral, competitive or superior-inferior feelings as to language show themselves?

6. In what way is the national character of such bilingual nations as Luxemburg, Switzerland, and Belgium different from that of a unilingual nation?

7. In what way do affective factors, such as social prestige, assumed superiority, or—contrariwise—assumed inferiority, or enforcement of a language by a hated nation affect language learning in a child.

8. How do victor and vanquished nations look at each other's language? Under what conditions may one learn the language of the other?

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PSYCHOLOGY AND THE WAR

Edited by
DONALD G. MARQUIS

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PLAN FOR A HISTORY OF PSYCHOLOGICAL SERVICES IN THE WAR

ROBERT M. YERKES, Chairman
For the Committee

The Division of Anthropology and Psychology, National Research Council, has appointed as a Committee on the History of Psychology and the War, Walter V. Bingham, Dael L. Wolfe, and Robert M. Yerkes, Chairman. With the approval of the Division the Committee presents the following plan of action.

Definition of task. To encourage the preparation of adequate materials of report by the agencies and individuals responsible for psychological work, and to prepare, for the profession and all concerned, a general and inclusive but brief and reasonably nontechnical account of what psychology and psychologists did to help win the war and the peace.

Procurement of materials. This plan, of course, presupposes the preparation and ordinarily also the publication of special, detailed, administrative and technical report on phases of psychological services by the various agencies (many of which are listed below), and also by individuals, responsible for the work. The over-all history which is projected should be thought of as supplementing any and all such special reports

of the military and other agencies and not as in any sense taking their place. It is a function of the Committee to confer with appropriate administrative officers of the various agencies concerning the significance of records and planned historical reports, to enlist their interest and cooperation, and to seek their assurance that as of the end of the war, or earlier if feasible, report on the psychological functions of the agency shall be made available to this Committee. Furthermore, each agency or field of service has been requested to designate one or more representatives, preferably specialists in psychology, to act as consultants to the Committee. The several individuals thus designated constitute a Board of Consultants as adjunct to the Committee.

Information sought. The Committee desires information on a wide variety of psychological-military activities, examples of which are to be found in mobilization, individual appraisal, classification, training, communication, espionage, propaganda, morale and incentives, counseling, problems in the design of weapons and other instrumentalities of warfare, etc.

The history of administration and organization is not the responsibility of this Committee. It is assumed that such reports are in preparation, or will be written by the agencies. The Committee needs authoritative information concerning (1) the requirement, need, or problem for the solution or satisfaction of which psychological techniques and psychologists have been employed; (2) the ways and means (procedures, techniques, adaptations, new inventions and developments) used in problem solution; (3) the practical values of the service as measured by objective data or indicated by approval, acceptance and adoption by military or other authorities concerned.

Preparation of manuscript. The Committee accepts no responsibility for editing or publishing the comprehensive historical accounts of services, but it will be responsible for the analysis of material obtained from the various source-agencies, for selection therefrom, for the development of a plan of presentation of the over-all general report and the preparation of a manuscript for press. Committeeman Dael L. Wolfe has agreed, circumstances at the unpredictable date of action permitting, to function as author of the volume. He will have the editorial assistance of his fellow committeemen.

Publication and distribution. It is proposed that this historical report be planned and written for issuance by a commercial publisher. Royalties, or other returns from the publication, shall be payable to the National Research Council, to be used for the support of psychological projects, or to reimburse any agency which may have advanced funds for the preparation of the manuscript.

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MILITARY PSYCHOLOGY IN THE ARMORED SCHOOL

MILTON B. JENSEN, JULIAN B. ROTTER, AND ROSS HARRISON

The Armored School, Fort Knox, Kentucky

The Office of the Personnel Consultant of the Armored School was formed in September 1942 by Major Milton B. Jensen at the direction of Major General Stephen G. Henry, Commandant, with the function of providing a variety of psychological services. The office was established as a result of interest shown by the Commandant following a series of lectures given at Fort Knox by the senior author while still in a civilian capacity. The name of this section was changed in 1944 to the Military Psychology Section without involving any change in function. This report concerns the activities of this Section during the period September 1942 to September 1944.

In addition to the authors, who are experienced psychologists with the doctorate, professional personnel during that period included Richard S. Ball (M.A. in psychology), S. Sanford Dubin (M.A. in psychology), and Ruth C. Brewer (M.S. in social work). The number of personnel varied from three at the inception of the office to eight in the spring of 1944, including clerical and stenographic assistants.

During the two year period the department performed a variety of functions which will be outlined under the headings of Research, Clinical, Educational and Advisory.

I. RESEARCH

Most research activities were coordinated with other functions and were undertaken with immediate applications in mind. In terms of time and emphasis research studies played a prominent role in the activities of the office. Major research projects are described below.

Analysis of AWOL. A continuous analysis of men who had absented themselves without authority was made over the two year period. This analysis sought out the sources and concomitants of AWOL. The psychological characteristics and background of soldiers who had gone AWOL were examined in considerable detail. In addition the different methods of punishment and control were investigated. On the basis of these studies reports and recommendations were made which when acted upon helped bring about a sharp reduction in AWOL in the Armored School.

Selection of officer candidates. A study of the selection of officer candidates for the Armored Officer Candidate School was begun in the summer of 1943. A large battery of ability and personality tests was administered to a group of "truly excellent" officers between ages 20 and 30 inclusive and to the 1,500 officer candidates in nineteen consecu-

tive classes. The purpose was to develop techniques which could be used in the initial selection of officer candidates for the Armored School and to eliminate potential failures early in the course. From these studies it was found that academic success or failure could be predicted with unusual accuracy from an ability test battery which included the Wonderlic Personnel test and the New Stanford Advanced Reading Comprehension, Word Meaning, and Arithmetic Computation. The extent to which personality factors were significant in success or failure in Armored Officer Candidate School was also evaluated. During the course of this research some of the personality tests coming into recent use were studied. As a bi-product of these studies it was found that the Multiple Choice Rorschach test was invalid as a screening device for officer candidates and that adequate interpersonal reliability could be obtained with a Group Thematic Apperception test.

Selection of radio operators. Various tests were administered to failing and definitely superior students in the radio operators course as an exploratory study of selective techniques. The two groups were reliably differentiated by the Army Radio Operators Aptitude test (ROA), selected items from a health complaint inventory, a letter-symbol substitution test, and on the basis of age. The discriminative power of these measures dropped when the total distribution of all student operators was compared with a pass or fail criterion. When the entire distribution was compared with this criterion, reliable selectivity was obtained only with the ROA administered at the Armored School but not with the same test given earlier at Army Reception Centers.

Minor studies. An analysis of personality factors in cold adaptation was made on a limited number of subjects at the request of the Armored Medical Research Laboratory. Other studies included an investigation of the attitudes and potential value of limited service men and an analysis of the psychosomatic and nervous complaints of 500 overseas returnees.

II. CLINICAL

The clinical work was broad in scope, combining some of the functions of a mental hygiene clinic, a psycho-educational clinic, and a court psychologist. Whenever officers or enlisted personnel were referred to the Military Psychologist for evaluation, reports containing a summary of findings and recommendations were sent to the Commandant and all officers concerned with disposition. In addition conferences were frequently arranged with commanding officers.

Sources and reasons for referral. The principal sources for referrals were the company commanders and the various departments of the School. Soldiers who had been AWOL or committed other violations of the Articles of War considered serious enough to warrant trial by

court martial were first sent for psychological examination to determine whether they were responsible for their behavior before disciplinary action was taken. These referrals were usually by company commanders who, sometimes in the light of psychological findings, withheld court martial proceedings in favor of psychiatric disposition. Ordinarily court martials were halted only for soldiers with severe psychopathology. Officer candidates were sometimes sent by the Director of Armored Officer Candidate School for evaluation if there were doubt as to their emotional stability. In order to relieve some of the pressure of cases on the inadequately staffed Neuropsychiatric Section of the Station Hospital, arrangements were made so that psychiatric problems from the dispensaries were seen by the Military Psychologist before admission to the hospital. In this way the Military Psychology Office has acted as a virtual out-patient department for the hospital in a consultant role. Parenthetically, it may be said that the working relations with the psychiatrists were harmonious; the psychological and psychiatric services were coordinated without any clash of professional jealousies.

The referrals were problem soldiers in general, but certain types of cases were prevalent.

Students doing poorly in the various courses given in the Armored School came for both educational prognosis based on test results and for determination of emotional balance, since many of the school failures could be attributed to affective disturbances. AWOLs and other court martial problems were not only evaluated for degree of responsibility, but the offense was studied in relation to the personality of the offender. The dispensaries referred psychoneurotics with psychosomatic conditions for aid in formulating judgments as to the relative importance of the psychic and somatic components in the disorder. Company commanders and department heads referred a large number of enlisted men for nervous manifestations, queer behavior, and upset emotional states. Others were sent because they either represented refractory discipline problems or there was some question as to their suitability for military service. Another smaller group consisted of officers who appeared at the clinic either on their own referral or because they had been referred by superior officers for examination and recommendation regarding emotional disturbances, misconduct, or inefficiency. An "off the record" consultation service to officers and their families constituted a small but significant function of the Section.

The clinical types most frequently encountered were psychoneurotics, social psychopaths, and mental defectives. Psychotics were rare, and many subjects were only mildly unstable or were essentially normal but in situational difficulties.

Methods of evaluation. The procedures employed varied with the requirements of the individual problem, but in all the basic tool was the interview by the psychologist which covered schooling, family life, jobs, psychosexual adjustment, social and recreational activities, atti-

tude to religion, history of illness, and an account of the subject's current perplexities. Before the interview clerical assistants transcribed to the Personal Interview Form such information from official records as Army test scores (AGCT, MA, CA, ROA), physical status, and civilian and military background including education, assignments, organizations, punishments, promotions and reductions in grade. Reports of Red Cross and civilian police investigations, physical and psychiatric examinations, and of Hospital Disposition Boards occasionally were available.

The amount of testing was adapted to the needs of each case. For estimating general intelligence chief reliance was placed on the Wechsler-Bellevue with the Wonderlic Personnel, Kent-Shakow Industrial Formboard Series, and the Kent-Kohs Blocks as auxiliary measures. In testing intellectual impairment or deterioration for patients with head injury or suspected psychosis, the Shipley-Hartford Retreat Scale, an intra-test analysis of the Wechsler-Bellevue, and tests of form perception were used. In the personality field the Psychasthenia Inventory of the Minnesota Multi-phasic and a specially devised inventory for the evaluation of physical complaints and hypochondrical trends were routinely administered before the interview to literate subjects, while several other questionnaires like the Thurstone Vocational Interest Schedule, McFarland-Seitz P-S Experience, and the Terman-Miles M-F test were occasionally given. The evaluation of personality questionnaires as well as of all other psychometric data was along clinical lines in terms of the total personality pattern as revealed by all modes of investigation rather than by literal acceptance of numerical scores. The most valuable technique for probing covert material in persons who could not be trusted in direct interrogation was the Thematic Apperception test. A number of other tests were administered on occasion, including the Rorschach.

Disposition. The possibilities for treatment and disposition included psychotherapy, Red Cross investigations, recommendations regarding punishment, disqualification for overseas combat duty, discharge from the Army, conferences with officers for counsel in handling problem soldiers, recommendations for transfer to combat training organizations and other units, change of assignment within the School, relief from courses, and other environmental manipulations. The position of the psychologist however was primarily advisory, seldom command, in function; his recommendations were usually but not always followed.

A large number of referrals showed neurotic trends in varying degrees, particularly dispensary patients with physical complaints. Psychotherapy was the method of choice but, except in a few cases of extended treatment, was necessarily limited, since psychological examination of from four to eight subjects daily in addition to other activities was not uncommon. Roughly 1,000 problem soldiers were examined and reported upon in writing during the two year period. With mildly unstable individuals and chronic discipline problems, the emphasis was less on trying to achieve drastic changes in personality structure and more on readjusting attitudes in the direction of greater identification

with the war effort and less concern with self, so that these men could function more effectively as soldiers. Severely neurotic enlisted men were disqualified for overseas combat duty, while others with such serious derangements as psychotic and acute anxiety states were referred immediately to the Neuropsychiatric Ward of the Station Hospital.

When patients appeared likely to suffer complete mental disorganization if kept in service or if the risk of suicide seemed great, discharge for psychological reasons according to the provisions of Army Regulations was recommended. The usual procedure with homosexuals was likewise to recommend discharge, since there was little chance of rehabilitation within the Army; instead the enforced close association with other men exacerbated the homosexual trend. When an enlisted man had homosexual guilt conflict, there was the danger of suicide or functional breakdown; with confirmed inverts of long standing, the danger of contagion was great. In discovering sexual aberrations both lie detection technique and the Thematic Apperception test proved invaluable. Whether men mentally defective in the psychometric sense were discharged or retained was determined by the degree of retardation, the amount of emotional control, and their value as soldiers on simple labor assignments. The disqualification and discharge functions were positive to the extent that men unfit for military duty (a) tax the administrative and service facilities of the Army, (b) constitute hazards to other soldiers whether on garrison or combat assignments, and (c) are more likely to become wards of the state if continued in military service.

For those who had committed military offenses punishment followed as a matter of course if they were found responsible for their behavior; when there were mitigating circumstances such as marked emotional instability, mental retardation, or extreme environmental pressures, these data were reported to the company commanders and to the Judge Advocate General's Department. A few who were so highly unstable that they could probably not endure stockade confinement without mental breakdown were recommended for discharge.

With failing students and officer candidates the question was usually one of retention or relief from school after either educational diagnosis by test methods or judgment regarding neurotic tendencies following examination. The cases of officers were special problems in diplomacy; disposition usually involved therapeutic conversations and consultation with the referring officer.

Special clinical services. A unique function of military psychology in the Armored School was the examination of approximately 200 cases for lie detection with a psychogalvanometer and occasionally with a sphymomanometer added. The men were referred not only by company commanders within the School but also by the Criminal Investigation Office of the Post Provost Marshal. The purpose was the determination of the truth or falsity of statements made by witnesses or enlisted men charged with such offenses as theft, cheating in examinations, violations of security, black market activity, and accidents caused by irresponsible behavior.

As part of the research on officer candidate selection, 1,500 candidates were examined with a battery of ability and personality tests. Detailed reports which contained scores, academic predictions, and rat-

ings on ability and personality suitability were made to the Director of the Armored Officer Candidate School. The test battery, usually somewhat modified, was also administered to 150 applicants for warrant officer or Officer Candidate School, and reports were submitted to the examining board.

Since the spring of 1944 approximately 1,000 overseas returnees and other new men transferred to the Armored School were examined in order to eliminate soldiers with severe neurosis from assignments within the School. The screening of unsuitable personnel was carried out by group testing with the psychasthenic and health inventories and by brief interviews. Those with high scores or other suggestions of unhealthy trends were then interviewed more carefully. Returnees with physical complaints were sent to medical officers for physical examination. Suggestions regarding individual assignments were made to the Classification Officer in certain instances.

Other miscellaneous clinical services were rendered from time to time; e.g. when men were to be chosen among illiterate and barely literate soldiers for special reading training, all were given non-language and elementary reading tests in order to discover those who had sufficient ability to profit from instruction.

III. EDUCATIONAL AND ADVISORY

Personnel of the Military Psychology Section lectured regularly to commissioned and non-commissioned officers. Mimeographed publications were distributed to all units and officers of the Armored School and to all who attended the lectures. Lectures given included:

1. A lecture on "The Psychology of Fear" for all student officers and to all officer candidates. This lecture grew out of a directive from the Commandant that men be prepared psychologically for simulated combat conditions.
2. A series of lectures for company non-commissioned officers on morale, adjustment, and the handling of other men.
3. Lectures on the nature and effects of frustration for all assigned officers.
4. Lectures to assigned officers on procedures for discharge of enlisted men for psychological reasons.
5. Lectures on personal adjustment for assigned officers.

Publications were written as accompanying material for lectures and also as an additional source of information. Those mimeographed for general distribution to assigned officers were:

1. *The Psychology of Fear*. A description of the nature and control of fear and facts concerning psychological casualties of war.
2. *The Problem Soldier: Kinds of Maladjustment*. A description of different kinds of maladjustment as they relate to the military with suggestions to commissioned and non-commissioned officers for handling such problems.

3. *The Problem Soldier: Case Studies.* Illustrative case studies were cited describing typical examples of the kinds of problems mentioned in the previous report with an account of their disposition or treatment.

4. *An Analysis of Personality Characteristics of AWOL Prisoners.* An analysis of race, background, psychological characteristics, and clinical types for 103 AWOL prisoners, showing the main causes for AWOL in the Armored School.

5. *Social and Military History of the Chronic AWOL.* A comparison of 83 AWOL recidivists with 83 matched cases of the same rank and approximate duration of service who had never been AWOL.

6. *Summary of AWOL for 1943.* A presentation of the frequency and main sources of AWOL. Monthly summaries were also circulated.

7. *Meeting Frustrations in the Army.* A description of the main frustrations the civilian who enters the Army meets at early and later stages of his training and methods of lessening such frustrations.

The Military Psychologist frequently acted in an advisory capacity to the Commandant or other officers in the School. On the basis of brief investigations, psychological principles, and military experience suggestions were made regarding problems facing the officer or agency making the request. The nature of much of this counsel cannot be divulged for security reasons. Some of the problems on which the psychologist was consulted are given below:

1. Investigation of complaints regarding prison conditions.
2. Methods of teacher training.
3. Critical evaluation of a training manual to be used with Battle Inoculation Training.
4. Daily schedules of activities and work periods for all students.
5. Training procedures for tank driving instructors.
6. Length of training sessions for Radio Operators Course.
7. Policy for punishment of military offenses.
8. Policy for discharge of enlisted men for psychological reasons.
9. Furlough and pass policies.
10. Vice control in nearby cities and control of venereal disease.
11. Methods of handling and using overseas returnees.
12. Extent and nature of recreational activities.
13. Utilization of men inducted on a limited service status.

This article has been designed to illustrate the wide range of applications of psychological techniques possible in a military garrison setting. Utilization of psychological services at the Armored School during this critical war period was a product of the combined efforts of School Command, medical officers, officers, and non-commissioned officers concerned directly with the men themselves.

THE VALIDITY OF CERTAIN MEASURES OF MALADJUSTMENT IN AN ARMY SPECIAL TRAINING CENTER*

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The large number of measures of maladjustment, or personality tests as they are commonly called, which have been developed since the first World War is tacit admission of the importance of factors in personality to success in living and to adequate personal adjustment. Some of the tests which have been developed have lacked both validity and reliability; some have a high reliability but it has sometimes not been easy to determine exactly what was being measured in so reliable a fashion. It would be difficult to find many which have proved useful in the psychological clinic.

The psychologist in Army installations often needs a measure of personal factors other than those of verbal or quantitative aptitude. Aptitude tests are available in comparative abundance and some have a relatively high degree of validity, but paper and pencil tests which will forecast the adjustment of the newly inducted soldier to the Army are not at hand. Even if such tests were available, they could not be used with the Army personnel assigned to a Special Training Unit (1) because of the inability of the men to read. What was needed was an oral test of adjustment, which of necessity must be short because of the number of soldiers to be interviewed.

Consequently, a tentative selection was made of the 23 most valid (2) items of the original 140-item *Bell Adjustment Inventory, Student Form*, which purports to measure home, health, social, and emotional adjustment. Subsequent item analysis showed all of the items to possess marked discriminating power for this special group of soldiers, just as they had in the original standardization—that is, all except one item “Do you love your mother more than you do your father?” This item was discarded. The validity of the 22 items remaining was subjected to further analysis by correlating the number of maladjusted responses in an individual interview against the number of times the soldier was returned to duty by the medical officers after he had re-

* The following article represents the opinions of the authors only and is not to be construed as representing the official opinion of the Army of the United States.

† The authors were assisted by the following staff members of the Center: 2d Lt. Harry Offenbach, Ephraim Yohannan and Jerry Clark; T/4 Roy Burge, T/4 Robert Ewart T/4 Earl Diffenderfer, T/Sgt. Clarence Mahler, T/4 James Taylor.

ported himself sick and nothing was found wrong with him. Only two health items were included among the 22. It was surprising, therefore, to find that the test correlated almost as well with the incidence of "riding the sick book" as did the Hypochondria subtest of the Minnesota Multiphasic Personality Inventory (3) which was a part of the battery of tests used at the center. This latter test had been introduced in the program as a specific measure of hypochondria in order to pick out those maladjusted individuals who continuously complained of ailments which no medical therapy diagnosed or alleviated.

The validity coefficients of the two tests were $.34 \pm .042$ for the 22 items and $.370 \pm .079$ for the Hypochondria section of the Minnesota Multiphasic Personality Inventory—hypochondria being used as the criterion.

It appeared desirable to include two other measures of maladjustment. One, a tendency toward paranoia, for it was believed that military life, with its necessary regimentation and authoritarian discipline, would bring to full flower any latent paranoid tendencies. For this purpose, the Paranoia subtest of the Minnesota Multiphasic was employed. The other measure, which was locally constructed, was adjustment to the Army, *per se*. Included in this test of Army Adjustment were questions concerning one's liking for Army food, one's feeling about his treatment by non-commissioned officers, his attitude toward his loss of privacy in sleeping, eating and washing, and his attitude of like or dislike toward the other soldiers in the camp.

These four tests of maladjustment—the reduced Bell Adjustment, Army Adjustment, the Minnesota Paranoia subtest, and the Minnesota Hypochondria subtest—were given as an adjunct to the group tests used in placing the soldiers in the Special Training Center and the vocabulary, general information and Army Wechsler Intelligence tests, which were individually administered.

After repeated item analyses during the months of September and October, 1943, the Paranoia and Hypochondria subtests of the Minnesota Multiphasic were so reduced in size and so changed by re-wording that they no longer bore any resemblance to the original tests. The same process was used with the Army Adjustment test; after each weeding out process through item analysis, more items were added until finally the test consisted of 25 quite valid items, as compared with the original 15 which the test initially contained. None of the Bell items was changed after dropping the one previously mentioned, for all the items stood up quite well on all subsequent item analyses.

The chief function of the Special Training Center is that of bringing its trainees to a level of literacy which is roughly that of the fourth grade, during a training period which cannot exceed sixteen weeks.

Very low verbal aptitude, language difficulty (over one-fourth of the trainees are of Mexican descent), and almost complete illiteracy on arrival prevented a number of the men from reaching graduation level within the time limits imposed by Army regulation. The men who could not complete the course of training successfully within the specified time limits were discharged from the service.

A preliminary study, made in November, 1943, showed that the trainees discharged had significantly lower averages on all the individually administered aptitude tests and on all the group tests than did the trainees who were graduated and shipped. This finding is, of course, to be expected. Somewhat unexpected, however, was the finding that the discharged trainees also had higher average scores on all four measures of maladjustment then in use. These findings were regarded at the time as promising but inconclusive, partly because the number of cases involved was relatively small and partly by inference from past studies of tests of maladjustment with scholastic success, which have failed to show any significant relationship.

By May, 1944, it was possible to make a check on the association of the four tests of maladjustment with the tendency of trainees to graduate from the Center or to be discharged for inaptness. All of the men received from Nov. 3, 1943 through Dec. 7, 1943, inclusive, had been disposed of and their personnel cards filed for study.

It was decided to lump all of the maladjusted answers on the four tests together, to comprise a single score. There were 87 possible maladjusted responses among the four tests; the highest total for any trainee was 68. A few trainees scored zero on the total scale. The average number of maladjusted answers to the 87 questions was, however, 22.63 for the total group, those being discharged for inaptness and those graduating.

The mean maladjustment score for graduates of the Center was 17.72; for those who were discharged for inaptness the mean was 31.82. The difference between the means, it will be noted, is 14.1. The difference between the means of the groups divided by the standard deviation of the difference yields a critical ratio of 8.49. It is thus obvious that the difference in average number of maladjusted responses between the two groups is not due to chance factors.

Desire to know the exact quantitative relationship between the tests of maladjustment and the tendency to attain, or fall short of the graduation standards prompted the next step, the computation of a bi-serial correlation. The bi-serial coefficient between total maladjusted responses and tendency to graduate or to obtain inaptness discharges proved to be .453 with a probable error of .028. This relationship bears out the implication of the large critical ratio of the difference between the means of the two groups. However, there remained the possibility that the relationship so far educed might be due to an artifact. Thus,

the relationship would be proved a factitious one if it could be shown that there was a sizable relationship between maladjustment, insofar as these tests were measures of maladjustment, and verbal intelligence or degree of literacy of the trainees on arrival.

The linear correlation (Pearson product-moment) between total maladjusted responses on the four tests and Army Wechsler Intelligence Quotient was .152 with a probable error of .028, the r in this instance meaning that there was a slight tendency for the better adjusted to have a somewhat higher mental level than did the poorly adjusted. It will be noted that the probable error is small enough to make the r of .152 significant. It may be of interest to mention that the bi-serial correlation of the Wechsler mental levels with tendency to graduate as opposed to obtaining a discharge is .521 with a P. E. of .013. There is little to choose between a general aptitude test and a test of maladjustment in this instance; together they make a good battery since their intercorrelation is so small.

The highest bi-serial relationship of any of the test variables employed, when correlated with graduation and discharge for inaptness, was .794, P. E. of .017. This r was found true of the combination of two paper and pencil tests employed for placing the trainees in their proper level for instructional purposes. The Pearson product-moment correlation of the combined placement tests and the total maladjusted responses on the four tests of maladjustment was .108 with a P. E. of .028, the more literate trainees tending to obtain somewhat lower maladjustment scores. This r probably represents a true relationship, in view of the Wechsler mental level-total maladjustment correlation, though the P. E. is a bit too large to establish this inference beyond all statistical doubt.

The linear correlation of the Wechsler mental levels and the combination of the two placement tests was .43, P. E. of .035. It is apparent that the much lower intercorrelation of the maladjustment tests with the two placement tests, combined, makes this combination more valuable for predictive purposes than would be true of the Wechsler mental level and two-placement-test combination.

The statistical evidence of the preceding paragraphs corroborates the strong impression of those who used the tests of maladjustment that these tests were clinically very valuable in predicting the success of the trainees in the school. It is the hope of all who construct tests that their measures will all correlate highly with the criterion but will not correlate so well with each other. This hope seldom is realized, though it seems to have been to a moderate degree with the tests under consideration.

There is some evidence that the tests of maladjustment were most

useful in the middle ranges of general verbal ability and of literacy. For instance, below a certain mental level (Army Wechsler) and literacy (as determined by the two previously mentioned placement tests), none of the trainees graduated, no matter how well adjusted they were. On the other hand, above a certain mental level (Wechsler) and literacy (Gray's Oral Reading Paragraphs), all the trainees were graduated, no matter how maladjusted the tests revealed them to be. The inference one can draw is that the measures of maladjustment were most significant when the trainee's psychometric pattern permitted graduation if he applied himself (i.e., was well adjusted), or tipped the scales in favor of discharge for inaptitude if he did not adequately apply himself in his school work (i.e., was poorly adjusted.)

In order to determine the relative contributions of each of the four tests of maladjustment, bi-serial correlations were run for each one separately. It will be noted (Table I) that the 22 items from the Bell Adjustment Inventory were most closely associated with the criterion of graduating versus discharge. The 25-point test of Paranoia was second in validity. Third, came the 15-point test of Hypochondria, followed by the 25-point measure of specific attitudes toward the Army. It will be noted that an increase of .118 is obtained in correlation value over the highest bi-serial correlation of any single test by using the total maladjusted responses from all four tests as a single variable.

The CR of the difference between the mean scores on the combined tests of maladjustment for trainees discharged as inapt compared with those who were graduated and shipped was, it will be remembered, 8.49. The comparable CR for the Concentrated Bell Adjustment is 6.04. For the measure of Paranoia, it is 4.94; for Hypochondria, 4.61; for Army Adjustment, 4.14. All the differences are statistically significant.

The bi-serial correlations in Table I may be considered as partial validity coefficients of the measures involved. It is also of interest to know the test-retest reliability of the maladjustment measures. Test-retest reliability of the Concentrated Bell Adjustment was found to be .86; for the Army Adjustment, it was .81; for the 15-point Hypochondria test, it was .71. The number of cases involved in each instance was 100. The reliability of the Paranoia test was not obtained.

Summary and Discussion

It has been shown that certain measures of maladjustment contribute information of value for predictive purposes beyond that afforded by the traditional psychometric measures of aptitude, both oral and written. No generalizations of data may be made from the highly specialized situation of an Army Special Training Center, which deals with men with considerably below average mental ability, to any school

TABLE I
THE BI-SERIAL COEFFICIENTS OF CERTAIN APTITUDE AND MALADJUSTMENT MEASURES AND TENDENCY OF TRAINEES TO GRADUATE OR TO OBTAIN DISCHARGES FOR INAPINESS

Variable	Bi-Serial r	P.E. of r
Concentrated Bell Adjustment.....	.335	.036
Paranoia.....	.298	.034
Hypochondria.....	.249	.055
Army Adjustment.....	.236	.037
Four Maladjustment Tests.....	.453	.028
Army Wechsler Score.....	.521	.013
Two Placement Tests Combined.....	.794	.017

situation outside the Army. Only those who have tailored tests of maladjustment to fit a particular situation can realize what it costs in man hours of work, in patience and in research to obtain results which statistically may seem small. But it is not overstepping the bounds of scientific propriety to say that one may hope that a comparable amount of research by public school psychologists might bring comparable results.

One caveat, however, must be entered. In the ordinary school situation, passing a test or successfully completing a course, has value as a goal toward which to strive. For some, if not many, of the trainees, passing the tests for graduation may not represent a desirable goal, for it means retention in the Army, an outcome which occasionally finds some quite intelligent soldiers unenthusiastic. Becoming a soldier meant to the average trainee giving up a job which paid him from two to three times more than he ever earned in his life before.

Thus it may be that there is no anomaly between the findings of this paper and that of scores which have preceded it—most of which, if not all, have shown that there was no relation between scores of a test of maladjustment and scholastic success defined in terms of grades. The partially maladjusted civilian student may be able to compensate scholastically for his maladjustment by the strength of his ambition, his aptitude for school work, or the strong goal gradient set up by various social institutions for being successful in school work.

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A MALINGERING KEY FOR MENTAL TESTS*

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Mental deficiency is frequently feigned, especially by illiterates. . . . For a disorder to be classed as true malingering, it must fulfill three conditions that—(1) No obvious or frank disease or personality disorder is present; (2) The individual is consciously aware of what he is doing and of the motive responsible for his attitude; (3) He is fixed in carrying out a purpose to a preconceived result. . . . Whenever it appears to an examining physician that an individual is endeavoring to escape service by malingering, if otherwise mentally and physically fit, he will be accepted. War Department Mobilization Regulations 1-9, 19 April, 1944, Section XXIV, "Malingering," paragraphs 104-112.

Malingering on mental tests, a form of behavior encountered at induction stations and other military installations, may be defined as the feigning of mental inaptitude in order to avoid duty. Contrary to customary testing practice, the motivation operates in the direction of producing failing rather than passing scores. Consequently, the detection of purposely inferior performance poses a problem for the psychologist.

In a broader sense, the detection of sub-typical performance, whether deliberately produced or not, is a matter of concern to the psychologist. The use of tests as selective media is based upon the implicit assumption that obtained scores represent true or typical levels of performance. Since malingering is only one of many factors which may produce sub-typical performance, the crucial question, from the practical military viewpoint, concerns simply the trueness of the test score as an indication of test ability. Of course, the validity of the test as a measure of military aptitude is presupposed by its very use.

At the induction station, the usual method of detecting malingering is to interview each selectee who fails the examination and to check for discrepancies or inconsistencies between his test score and his educational and occupational history, general demeanor, language-expression, etc. In addition, the reasons for particular answers on the examination may be sought and evaluated.

The purpose of this paper is to introduce a malingering key, an objective instrument designed to expose sub-typical performance on mental tests. Although especially devised for the Army's Visual Classification Test, the methods which were originated in its construction are applicable to psychological tests in general. Essentially, the key is a

* The opinions expressed in this article are those of the author and are not to be construed as reflecting the official attitude of the Army of the United States.

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scale composed of those items which proved most sensitive in differentiating between simulated malingering and genuine failing performance. Applied directly to the original test papers, and therefore requiring no additional testing, the key yields a malingering score based upon the number of *discriminating easy items failed and difficult items passed*. A critical score, established at the point of maximum differentiation between failures and malingerers, serves as the diagnostic criterion.

Properly used, the key enables the examiner to make more efficient use of his time and to do a more effective job. At the same time, it should increase his confidence in the accuracy of his decisions. A description of the methods used in the construction of the malingering key; statistics on its reliability and validity; and its proper use and interpretation constitute the scope of this paper.

BASIC HYPOTHESIS AND ASSUMPTIONS

The research underlying the construction of the malingering key was predicated upon the hypothesis that morons and malingerers give characteristic, empirically differentiable patterns of test performance. This hypothesis was in turn based upon the following assumptions:

1. that the bonafide failure will tend to pass most of the items which are passed by a majority of the failing group and will tend to fail most of the items which are failed by a majority of the failing group;
2. that the malingerer will tend to fail more of the easy items and pass more of the difficult items than the bonafide failure will,* and
3. that the malingerer will, therefore, approach the performance of a good group more closely on the hard items, whereas the bonafide failure will approach the performance of a good group more closely on the easy items.

The foregoing hypothesis and assumptions were experimentally substantiated in the present investigation.

Operational premises. In order to test the basic hypothesis, the three assumptions were converted into operational premises, which, applied independently and in various combinations to the data obtained from the experimental groups, provided the statistics for deriving different scoring keys. The keys were compared and evaluated and the best one finally selected. The three operational premises, serving as criteria for the inclusion of items in the malingering scoring key, are given below:

Premise 1. The greater the percentage of the failure group passing an easy item, the better the item; conversely, the greater the percentage of the failure group failing a hard item, the better the item.

Premise 2. The greater the percentage of the failure group passing an easy item, plus the greater the percentage of the malingerer group failing it, the better the item; conversely, the greater the percentage of the failure group failing a hard item plus the greater the percentage of the malingering group passing it, the better the item.

* An accurate subjective appraisal of the ease or difficulty of test items is a hazardous task even for test experts, certainly so for inexperienced selectees.

Premise 3. The greater the difference between the failure and the malingerer groups and the less the difference between the failure and the good groups on an easy item, the better the item; conversely, the greater the difference between the failure and the good groups and the less the difference between the malingerer and the good groups on a hard item, the better the item.

Item difficulty was determined on the basis of performance of a failing group. The setting up of standards for the actual selection of items in the application of the operational premises was more or less of a subjective, arbitrary procedure aimed at getting the most sensitive items without sacrificing too many of them. Twelve keys, which appeared promising, were constructed, two of these being obtained by the application of a very simple weighting system. With further analysis and treatment along the lines described in this paper, better keys might have emerged; but the high percentage of success obtained in the identification of failures and malingerers suggested relatively little room for improvement.

EXPERIMENTAL PROCEDURES

Experimental groups. Three groups, each consisting of fifty selectees, were utilized in the experiment; (1) a good group, which passed the examination; (2) a failure group, which failed the examination, and (3) a malingerer group. The good and failure groups were built up on the basis of past testings, the available papers being selectively sampled so as to be representative of their respective populations. The malingerer group was selected from among the men who are customarily examined by the psychology department, and was then subjected to the experimental conditions of simulated malingerings.

Present practice calls for the administration of a verbal intelligence measure, the Mental Qualification Test, to all men who are not high school graduates. It is assumed that those who pass this test are mentally capable of performing useful military service. All men who fail the test are required to take a non-language intelligence test, the Visual Classification Test.

In order to ensure the exclusion of those men who might not really be capable of passing the Visual Classification Test, only those men were included in the malingerer group who showed their ability to pass the Mental Qualification Test with a score at least three points above the minimum passing score.

*The Visual Classification Test.** Since the malingerings scoring key was constructed for the Visual Classification Test 1-a, some brief description of this instrument is apropos.

* The Visual Classification Test has been superseded by the Group Target Test, which differs from the former in that it calls for a *projective* type of response. This allows an additional approach to the construction of a malingerings key and will be reported upon subsequently.

The Visual Classification Test is a non-language test of mental ability . . . composed of pictorial items whose solution is entirely independent of language skills. The items cover a wide range of difficulty but emphasize the lower end of that range. The directions involve a minimum of language so that inability to read or speak English will not handicap a man who is otherwise capable of performing many useful jobs.*

The Visual Classification Test is a multiple-choice paper and pencil examination containing fifty items. It should be noted that the time limit of fifteen minutes is very liberal, allowing completion of the examination in almost all cases. To all intents and purposes, therefore, the test operates primarily as a power test.

Procedure. In view of the variety of approaches that might be used by true malingerers, it was deemed desirable to avoid the inculcation of any special mind-set. The subjects of the malingerer group were therefore asked to assume the mind-set of the malingerer as they conceived it, and to try to fail the examination accordingly. The following statement was made to the malingerer group:

All the men in this group did a fine job on the first examination (Mental Qualification Test). That is why you have been selected. The Army wants your cooperation in a little experiment.

Some people believe that if they fail our examination, they will be turned down by the Army. Make believe that you are one of those men and that you want to try to stay out of the Army.

You are going to be given a special examination and the idea is for you to try to fail the examination, and to fail it in the same way that you would if you were really trying to evade Army service.

Remember, this is purely an experiment, and will not determine your acceptance or rejection. At the same time, this is an Army project and your full cooperation is requested.

The group was then informed that the test would be administered exactly as usual, in order for the men to know how the test is ordinarily given. After the sample items were demonstrated, the following statement was made:

Don't forget, you are not supposed to pass the test; you are supposed to fail it—but in such a way that no one can catch on to you. Now, you figure out how you can best do that, and go ahead. I might add that what we are asking you to do is not as easy as it may seem. You will have exactly fifteen minutes to take the test. Begin now.

Excellent rapport was established. One member of the group desired to know what constituted the passing mark, but was informed that the men who really try to fail do not possess that information.

At the completion of the test, inquiry revealed that many subjects had tried to pass the examination (some unsuccessfully) and that many more had attempted to fail all of the items. Very few appeared to have comprehended the task. Therefore, the experiment was repeated. It

* TM 12-260 Personnel Classification Tests, War Department, 1942, p. 24.

was pointed out that those who had tried to pass the examination had misconstrued the intent of the experiment; and that those who had failed every item would have been detected instantly. The purpose of the experiment was reiterated and the test repeated. The data from this second test were utilized in constructing the malingering scoring keys. The papers for the men who had tried unsuccessfully to pass the examination were discarded, leaving fifty papers in all.

In a sense, the experimental malingerer group had an advantage over the true malingerer. The fifteen minute time limit to the test does not allow the malingerer to evaluate each item too carefully; whereas, in the present experiment, the familiarity with items engendered by the first administration may have aided in their evaluation.

It was found that the data derived from the use of the second operational premise, described previously, yielded the best results. Since the procedures which were utilized, based upon this premise, are equally applicable to other tests, the steps in the process of scale construction are listed below:

1. A representative sampling of failing papers is obtained.
2. A group of non-high school graduates is requested to "malingering" on the examination. The ability of the individuals to pass the examination should first be established by pre-test. Many individuals will be found to pass the test when they are supposed to "malingering"; their papers should be discarded.
3. For each individual the correct items are entered upon item analysis sheets.
4. The percentage of failures and malingerers passing each item is determined; and the raw difference in percentages is recorded.
5. The items which are passed by more failures than malingerers are considered the easy items; those which are passed by more malingerers than failures are considered the hard items. The percentage differences (as recorded in step 4) may be indicated as plus and minus for the easy and hard items, respectively.
6. Those items showing the greatest percentage differences are incorporated into a key, and may be weighted in accordance with the size of the difference. Obviously, a great many keys may be constructed, depending upon the strictness of the standards used in the selection of items and the determination of weights assigned to each item.
7. Each key is then applied to the item analysis sheets and the distributions of malingering scores for failures and malingerers are compared. The critical score is set at the point which allows the least amount of overlapping between the failure and malingerer groups.
8. The percentages of correct identifications of failures and of malingerers are compared for each key. That key which allows the least percentage of malingerers to escape, and subjects the least percentage of presumably genuine failures to suspicion is the best key.
9. This key may then be refined by applying it to the overlapping individuals in the failure and malingerer groups, and altering the weights of the items in accordance with their ability to differentiate in the proper direction between these overlapping or "critical" groups.

10. This refined key is then applied to all the cases and the results are compared against the old key.

11. The key is then applied to an entirely new group of experimental malingerers and bonafide failures and its effectiveness noted. It is now ready to be applied in the field.

THE RESULTS

The difference in the distribution of raw test scores of the failure and malingerer groups was so apparent that refined statistical analysis was really unnecessary. Nevertheless, the test scores of the fifty experimental malingerers were compared with those of a sampling of 268 failures, with the results summarized below:

Groups	Mean Test Score	S.D.	S.E.m	D	S.E.d	D/S.E.d
Failure	32.4	7.54	.46	10.6	0.88	12.0
Malingerer	21.8	5.24	.74			

Although the distribution of raw scores for the failure group conformed to the lower half of a normal curve, making the statistics of probabilities inappropriate, the critical ratio (D/S.E.d) obtained was so great that the operation of chance factors to produce the difference is practically eliminated from consideration. Apparently, malingerers fear that they may defeat their own purpose by passing the examination unless they score quite low, with the result that they score, on the average, considerably below the genuine failures. It is probable that the more cautious the malingerer, i.e., the greater his fear of detection, the less the number of items which he will deliberately fail. His test score will tend, therefore, toward the higher failing score, while his malinger-ing score will tend toward the lower malingering score. In actuality, he is malingering to a lesser degree than the less cautious malingerer although his objective is the same.

The responses to each test item for each member of the good, failure, and malingerer groups were recorded upon item-analysis sheets. The correct and incorrect choices were entered. Preliminary inspection of the particular incorrect choices revealed that the slight advantage that might accrue from their use would not compensate for the increased difficulty of scoring; and so they were not considered further. In order to avoid constant handling of the original test papers, single-line window keys were devised which enabled rapid scoring directly on the item-analysis sheets.

Validity. Based upon different premises and standards used in the selection of items, twelve malingering keys were constructed. Each key was applied and the resulting distributions of malingering scores were analyzed to ascertain the "critical scores," or scores allowing the least amount of overlapping between the failure and malingerer groups. The

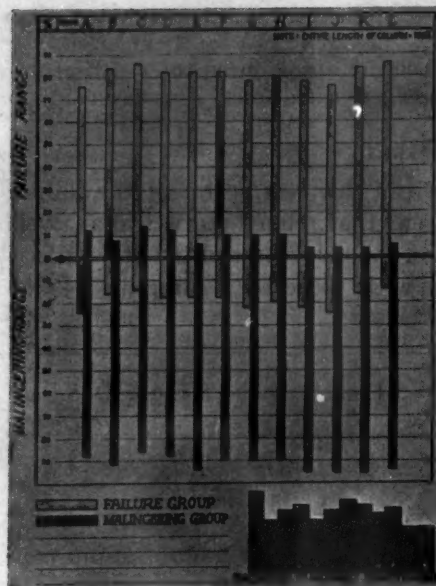


FIG. 1. Per cent of correct identification of "failures and malingers" by different scoring keys.

tions would be one hundred. Such perfection would hardly be expected in any case, especially so since the failures and malingers may not have constituted pure groups, i.e., some failures may have been malingering and some malingers may not have been capable of passing the examination.

Since the ability to differentiate between groups that are known to be different is one measure of the validity of an instrument, the high percentage of correct identifications afforded by the malingering keys constitutes an index of their validity. Figure I gives a graphic portrayal of the extent to which the various keys differentiate the failure and malingering groups. It is to be noted that in all cases the amount of overlapping of the two groups is very small.

It was observed that the use of the more rigid standards in the selection of items tended, within limits, to yield more effective keys. However, a point is reached where the decreased reliability resulting from the loss of too many items reduces the effectiveness or differentiating power of the key.

Another index of the validity of the keys was furnished by determining the reliability of the difference between the failure and malingering groups. The critical ratios for the different scoring keys (represented by the ratio of the obtained differences to their standard errors) ranged

percentage of correct identifications for each key was computed by adding the number of failures in the failing range to the number of malingers in the malingering range. Since there were exactly one hundred subjects in the combined groups, this procedure gave the desired percentage directly.

The percentages of successful identifications of failures and malingers with the various keys ranged from eighty-two to ninety per cent. It was clear that several of the keys were almost equally effective, the differences being so small as to be attributable to chance factors. Theoretically, if all failures and malingers were successfully identified, the percentage of correct identifications would be one hundred.

from 7.4 to 13.3, values so high that they lie outside the range of published tables of probabilities. A critical ratio of three is ordinarily interpreted to establish statistical significance. The extraordinarily high critical ratios which were obtained most decidedly confirm the validity of the malingering keys. Parenthetically, it may be noted that the military personnel at the induction station were no more successful than the experimental malingerers in avoiding detection upon simulating malingering.

The key that was finally selected as most effective allowed double weight to those items which were common to all keys. The weights were assigned on the assumption that the greater the number of keys on which a given item appears, the better the item, since it survived all variations in premises and standards. The resulting improvement, which increased the previous maximum percentage of correct identifications of the combined failure and malingering groups from eighty-eight per cent to a new high of ninety per cent, justified the procedure. Applied to the separate groups, the key correctly identified ninety-six per cent of the malingerers and eighty-four per cent of the failures. Or, stated differently, four per cent of the malingering group, as against eighty-four per cent of the failure group, received low malingering scores; whereas, ninety-six per cent of the malingering group, as against sixteen per cent of the failure group, received high malingering scores. The differentiating power of the key is also most positively demonstrated by the critical ratio value of 11.3, obtained by comparing the malingering scores of the failure and malingering groups. The subsequent analyses are limited to this key alone.

Scoring. Used as a scoring stencil, the malingering key resembles the key for the Visual Classification Test but exposes only eighteen of the fifty items. The scoring is accomplished by placing the key over the test paper and giving one or two points, as indicated, for each of the checked items failed and one point for each of the crossed items passed. The reduced number of items on the malingering key facilitates rapid scoring. The following items, with their corresponding weights, are included in the key:

Item	Weight	Item	Weight	Item	Weight
1	✓✓	12	✓	28	×
4	✓✓	13	✓✓	31	✓
5	✓✓	15	✓✓	34	×
7	✓✓	17	✓	36	×
8	✓✓	18	✓✓	39	×
11	✓	20	✓✓	44	×

The resulting malingering scores may range from zero to twenty-seven points. A malingering score of eleven points was established as the point of maximum differentiation between the failure and malingering

groups, allowing the least percentage of error of identification. To raise the score would increase the number of malingerers eluding the key; whereas, to lower the score would increase the number of failures subjected to suspicion of malingering.

Consistency. In order to see whether another group of failures, whose papers had not been used in the actual construction of the keys, would give results similar to those of the original failure group, the malingering scores were ascertained for a sampling of one hundred representative failing papers. Fourteen per cent, or two per cent less than in the original failure group, fell into the high malingering range. In similar fashion, the experiment was repeated for a group of simulated malingerers, with this variation: the subjects were tested to determine their true ability on the Visual Classification Test. The few failures on the test were not considered further, although they remained with the group. As in the first experiment, many subjects tried to pass the examination although instructed to mangle, and it was again found necessary to repeat the instructions. Apparently, the concept of simulated malingering is difficult to grasp. This time only one malingerer (two per cent of the group) managed to circumvent the key. Combining the first and second experiments, only three out of a hundred known malingerers achieved low malingering scores; while fifteen per cent of presumably genuine failures received high malingering scores.

The following excerpt from a letter to the writer, although describing very few cases, adds interesting "negative" evidence on the validity of the malingering key:

While I was at the Boston station we had a few interesting experiences with the key. A team of examiners, of which I was a member, made a trip to the State Reformatory to examine inmates there who were being considered for parole in order to be inducted into the Army. We had to give VCT's to some seven of the men, and we scored all the papers for malingering, getting malingering scores of zero to three! This was interesting because in the particular group the urge *not* to mangle was strong.

Reliability. A more refined analysis of the consistency of the malingering scoring key was attempted through the determination of the reliability coefficient. Since the reliability of the key was presumed to be dependent to some degree upon the reliability of the Visual Classification Test (the key having been constructed upon the basis of test patterns of performance) the latter instrument was likewise analyzed for reliability. The reliability coefficients, determined for various groups and combinations of groups, were obtained by the split-half method applied to the odd and even scores. They were then corrected by the Spearman-Brown formula and their probable errors were computed.

The highest corrected reliability coefficient for the Visual Classification Test was .91, as determined on the basis of the combined good and

failure groups. These groups, taken together, correspond to a normal population. The highest corrected reliability coefficient for the malingering key was .73, as determined on the basis of the combined good, failure, and malingerer groups. It is likely that this reliability is deceptively low, as a result of the complete absence of reliability of the malingering key for the good and the failure groups. Both of these groups had reliability coefficients approaching zero, values within the limits of their own probable errors and therefore attributable to chance.

This absence of reliability of the malingering key for the good and failure groups, which are non-malingering groups, is additional evidence in support of the key. The malingering scores for these groups should have been purely chance scores; and chance scores, by definition, are uncorrelated.

Further investigations. Under the authorization of the Personnel Consultant of the Mobilization Section, the malingering key was tried out experimentally in the six induction stations of the Fifth Service Command. The statistics were received by the Personnel Consultant who forwarded them to the writer. For the purposes of conserving space, the statistical tables are not included in this report and only the essential findings are indicated:

1. The median malingering score for 7,039 test failures was 6.4 points, or one point above a purely chance score of 5.4 points (one-fifth of the twenty-seven points on the scale). The difference was probably caused by the presence of malingerers whose high malingering scores raised the average for the group. The median malingering scores for the different stations ranged from 5.8 to 6.9 points.

2. Exactly seventeen per cent of the test failures received high malingering scores. Four of the six stations fell between the limits of 16.1 and 18.1 per cent. The other two stations fell at 10.0 per cent and 25.1 per cent, respectively. The differences in the data submitted by the latter stations may possibly be accounted for by differences in the nature of the groups (cultural or cooperational); or by differences in the method of test administration (motivational intensity, emphasis on speed, allowance of omissions, etc.).

3. A scatter diagram submitted by one of the induction stations for a sampling of 381 cases showed an obvious inverse relationship between the test scores and malingering scores. This may be interpreted in either of two ways: a) Low test scores force the accompaniment of high malingering scores by nature of the construction of the malingering key; or b) The lower the score on the examination, the more the number of items that might have been subjected to malingering. The former interpretation may be ruled out by the following facts: fifty-two per cent of the failures with test scores between sixteen and twenty points obtained low malingering scores, some getting malingering scores as low as five points; several failures with test scores between eleven and fifteen points, barely above chance scores, received low malingering scores.

4. The malingering scores associated with the higher failing test scores conformed to a normal distribution curve, with the mean approximating the theoretical chance mean of five points, showing that the malingering scores below the critical value of eleven points are in all likelihood chance scores.

APPLICATION AND INTERPRETATION

A high malingering score, in and of itself, may be interpreted statistically as performance-deviating-from-the-normal, and as such warrants further investigation. The atypical, fluctuating sort of performance or "internal scatter" which yields a high malingering score constitutes the typical performance of the malingerer. However, it has also been found associated with certain factors other than malingering. Although it should be noted that, by and large, these other factors tend to be of relatively infrequent occurrence, they are listed below to caution the examiner against attributing every high malingering score to a malingering performance. These factors include:

1. An organic condition of the brain or central nervous system;
2. Psychic lapses associated with petit mal epilepsy;
3. Psychoneurosis;
4. Unstable personality;
5. Emotional blocking;
6. Low-grade feeble-mindedness;
7. Misunderstanding of test directions;
8. Skipping of items;
9. Overemphasis on speed;
10. Preoccupation or mental wandering;
11. Visual defects;
12. Cultural factors.

A brief statement of the reasons why some of the factors listed above may produce high malingering scores should help to clarify the operation of the key. For example, it has been observed that many cases diagnosed by the psychiatrist as psychoneurotic obtain high malingering scores. In some instances, this may simply indicate malingering at both stations; in others, the fluctuating performance associated with the high malingering score may be symptomatic of psychoneurotic behavior. It is interesting to speculate upon the possible diagnostic value of the instrument along psychiatric lines.

The presence of an organic cerebral syndrome, as in confirmed brain injury or lues, has been found associated with high malingering scores in a number of instances. It is a plausible supposition that the condition interfered with normal mental functioning and produced marked unevenness or scatter in test performance.

Low-grade feeble-mindedness is frequently accompanied by a high malingering score because the choices are made largely at random, with the result that many easy items are failed and some difficult items are passed. Most of the high malingering scores in the genuine failing group are accounted for in this fashion. Fortunately, low-grade feeble-mindedness is relatively easy to recognize.

Cultural factors may operate to produce a high malingering score

for the reason that items which are easy for the general population may be unfamiliar and consequently difficult for certain cultural groups. For this reason, high malingering scores are of dubious validity for Chinese, Mexicans, Indians, Filipinos, and possibly other groups. However, northern Negro groups do not appear to be unduly influenced by the operation of cultural factors.

One other caution may be noted. Some men who actually are incapable of passing the examination score deliberately below their true ability and get high malingering scores. Frequently, retest scores subsequent to the interview show an increased test score still below passing with a considerable reduction in the malingering score. It would not appear advisable to recommend these men for induction.

INTERVIEW AND RETEST

It is unnecessary for the psychological examiner to determine which of the factors described above, if any, may have been responsible for a given high malingering score. However, unless additional evidence of malingering can be procured, the malingering score, in and of itself, should not be accepted as conclusive evidence of malingering. The usual method for obtaining this additional evidence is by means of an interview and retest. Although a marked gain in retest score is not absolute proof of malingering on the first test, it does constitute strong presumptive evidence on that point. In any event, a marked improvement may generally be taken as fairly good evidence that the first test score was at a sub-typical level and hence not a valid index of true ability. A passing retest score may reasonably be interpreted to rule out a diagnosis of mental deficiency.

The approach to be used in dealing with men suspected of malingering depends upon the ingenuity of the examiner and the personality and attitude of the selectee. Wide experience with the key has convinced the writer that improved retest performance is ordinarily best effected through the use of some face-saving device, although a blunt accusation of malingering is sometimes necessary. One approach which has proved highly effective in most instances, without introducing the danger of unjust accusation, involves approaching the selectee with a blank test form and explaining good naturedly that apparently the man had not understood what the first test was all about since he scored so exceptionally low; in fact (he may be told), he did only as well as children of seven or eight years. Since this obviously does not make any sense, the test will be repeated, and this time he should pay careful attention and be sure that he understands what he is to do. Then three or four sample items are re-explained and the test repeated.

Another approach that has proved successful is to explain that the examiner is puzzled by the peculiar test performance. It is pointed out that, as a result of experience with thousands of men, we know which are the easy items and which are the hard ones. We are puzzled over the fact that this man has failed many very easy items, which practically everybody gets right, and has passed a

number of very hard items that very few men can get right. If he cannot do the easy ones, it is strange that he has been able to do the hard ones. If he can do the hard ones, it is odd that he missed so many easy ones. It is then explained that this man probably did not pay as close attention to the test items as he might have and that the test will therefore be repeated. This time he is expected to concentrate on the test and make sure that he does not miss the easy items. Just to be certain that the man understands, some sample items may be readministered.

The approaches described above have produced remarkable increases in retest scores, ranging from fifteen to twenty-five points or more. In some instances, of course, the suspect may refuse to budge from his position and again fail the test miserably. Here the examiner must rely on other evidences of malingering that may be elicited by the interview. Where corroborative evidence in support of a high malingering score can be adduced, a recommendation for induction appears to be warranted. However, where such corroborative evidence is lacking, a recommendation for induction would seem questionable. The malingering score is suggestive only and not conclusive.

CRITICISMS

The following ingenious criticism of the malingering key was submitted by the psychological officer at one of the induction stations:

A malingering scale should show no malingering score for the person making a high score on the Visual Classification Test. In using the present scale, it is possible, theoretically, for a person to pass the test and yet have a malingering score of 24!

10 easy items omitted or answered incorrectly	
9 with double value.....	18
1 with single value.....	1
5 difficult items answered correctly.....	5
Total.....	24

The answer is that it simply does not happen. The highest malingering score actually obtained in the good group was eight points, which is three points less than the critical score value.

A more serious criticism is the suggestion that experimental malingerers may not give the same type of performance as real malingerers. To this criticism, which is essentially an expression of skepticism, the following arguments are offered in rebuttal:

1. The criticism in no way affects the genuine failure group, which has been found to be effectively screened by the use of the key.
2. The criticism fails to account for the number of "proved" malingerers detected by the key.
3. Although the motivation of experimental and true malingerers is different, it is difficult to see how this can alter their mode of performance on the examination. In both instances, the objective is to feign feeble-mindedness and to fail-in-such-a-fashion-as-to-deceive. The only possible way, aside from pure ac-

cident, to achieve a low malingering score is to assume the thought patterns of the mentally deficient. That this is an extremely difficult thing to do is confirmed by published researches. (See references.)

4. From a purely statistical viewpoint, if from no other, the relative infrequency of high malingering scores makes such scores interpretable as indices of performance-deviating-from-the-normal and consequently subject to further investigation.

5. Since the key is designed as a tool to supplement rather than supplant the interview, it becomes an additional barrier for malingerers to hurdle.

SUMMARY AND CONCLUSIONS

On the basis of experimentation involving the use of good, failure, and simulated malingerer groups, an effective instrument for the detection of malingering on mental tests was devised. Although specifically adapted to the Army's Visual Classification Test, the methods which were originated in its construction are applicable to other psychological tests.

The procedures which culminated in the malingering key consisted of subjecting the experimental data to statistical analyses predicated upon three premises taken independently and in various combinations. Each premise or combination of premises, at a particular standard for selection of items, provided the statistics for deriving a different scoring key. Several promising keys were then combined, to make a total of twelve different scoring keys. These keys were ultimately compared and evaluated in terms of their ability to differentiate successfully between genuine failures and simulated malingerers; and the most sensitive key was finally selected. A moderate standard for the inclusion of items in the scale gave optimum results.

The malingering key requires no additional testing, being applied as a scoring stencil directly upon the failing test papers. It yields a score suggestive of possible malingering or sub-typical performance. Designed to supplement the interview, it serves as a rapid screening device for genuine failures and as a suspicion indicator for possible malingerers.

In the original failure and malingerer groups, only four per cent of the malingerers eluded the key, whereas sixteen per cent of presumably genuine failures were subjected to suspicion of possible malingering. Applied to a new group of simulated malingerers, only two per cent eluded the key; whereas fourteen per cent of an additional sampling of one hundred failing papers gave scores suggesting the possibility of malingering. Combining the results, the key was successful in identifying ninety-seven per cent of simulated malingerers and eighty-five per cent of presumably genuine failures. The reliability of the difference between the mean malingering scores of failures and malingerers was so great that the obtained value fell outside the range of published tables of probabilities.

In extensive field trials with thousands of cases distributed among a half dozen induction stations, the malingering key eliminated from seventy-five to ninety per cent of test failures as non-malingers, thereby enabling the examiners to concentrate their attention more fully upon the remaining few. At the writer's station, a considerable number of men with neutral histories but high malingering scores was prevented from evading military service. Proof of the mental adequacy of these men was established on the basis of remarkable increases in retest scores following an interview. The use of a face-saving approach of some sort was found to be especially successful in effecting improvement in retest performance. Similar retesting of failures with low malingering scores was unsuccessful in effecting such improvement in most cases.

Although the malingering key was found to give especially good results, it is probable that a test especially designed for the purpose would enable the key to function even more effectively. For optimum results, such a test should probably have the following characteristics: 1. a liberal sprinkling of easy items; 2. items of varying degrees of difficulty; 3. a scrambled sequence. Once available, the key should be applied routinely to all failing papers. It is the writer's opinion that the construction and use of keys for the detection of sub-typical or unstable performance on other mental tests should contribute significantly to improved testing practice and clinical diagnosis.

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BOOK REVIEWS

RIBBLE, MARGARET A. *The rights of infants. Early psychological needs and their satisfaction.* New York: Columbia Univ. Press, 1943. Pp. x+118.

In her introduction the author of this book indicates four purposes in its writings as follows:

1. to determine some facts about the psychological needs of small infants.
2. to find out more of the nature of the first personal relationship between the baby and his parents and the effect of this highly personal first adjustment on the future personality of the child.
3. to determine to what extent tendencies toward poor nervous organization existed in some babies at birth, and whether such tendencies might develop or increase in response to the wrong parental care, and
4. to what extent strong emotional attitudes in the parents or in a child's nurse may affect the rapid and sensitive personality development taking place in the first year of life.

This represents a splendid research program, one greatly needed in the area of infant behavior investigation. The author points out that research on the nutritional and medical care of infants has made valuable contributions but that the earliest psychological needs of babies demand as careful attention from the scientist. One can heartily agree with this viewpoint.

The author apparently brings to the writing of her book an impressive background of experience with both infants and mothers. She says that some 600 healthy infants were observed and their responses to various types of routine care followed together with a group of children suffering from birth injuries. In addition infants in the home were studied, as well as 20 premature babies with functional disorders of breathing, circulation, or nutrition and borderline cases including a microcephalic idiot. Twenty children were followed from birth for four years to watch the child-mother relation. A group of 100 expectant mothers was observed, and mentally ill adult patients were studied intensively.

Some of the topics discussed concern the baby's right to a mother, oxygen hunger, sucking, learning to feel, thwarting, emotional development, getting ready to think. The theme that continuously runs through the chapters is the concept of *mothering*. The term is defined as a "continuance of the closeness of the prenatal state, and the more clearly it imitates certain of the conditions before birth the more successful it is in the first weeks." . . . "Mothering also means understanding an infant's biological needs. The child has not one but three hungers: he has a hunger for oxygen, and a craving to feel as well as to eat." To this biological or embryological concept of mothering is added physical and social aspects such as "fondling, caressing, rocking, and singing or speaking to the baby."

According to the author, the beneficial effects of *mothering* are numerous. It will aid in the cure of marasmus and respiratory difficulties, it is related to smooth speech development, it is the primary factor enabling the infant to pass through the sucking stage, it satisfies the infant's "stimulus hunger" defined as "an inborn need preceding the true emotional longing for the mother," it pre-sides "in all the delicate processes through which the infant feels his way out-ward," it prevents convulsions and shock, it cures the rolling habits in which some babies indulge during sleep, it prevents stupor or a kind of hibernation observed by the author, it improves blood circulation, it acts as the child's

brain. As a result of mothering "the child gradually combines and coordinates sucking, or food intake, with sense intake, looking, listening, and grasping," and this provides the basis of a "photographic image registered in the brain." And finally it prevents precocious sexual development.

The author says that she has found in her researches that the absence of proper mothering may result in shock, croup, constipation, bleeding from the navel, coughing, hiccoughs, violent crying, temper tantrums, body tenseness and rigidity, the dangers of weaning, mucous diarrhea and bad toilet habits.

The contents may be considered either from the standpoint of popular reading or as a scientific discussion. On first opening the book, one is given to understand that "the ideas presented in this book are based on a long series of studies, from many angles, of babies and their parents." However, anyone interested in a scientific presentation of the results of the studies or in a popular presentation of scientific findings will be disappointed. Notwithstanding the impressive number of subjects which the author has had for purposes of observation, one distinctly has a let down feeling when he looks for a scientific treatment of the data. At best the reader is offered only cursory descriptions of so-called typical cases. There is no statement of how the researches were conducted, how the various groups of data were collected, what scientific precautions and controls were used to safeguard the studies, or by what methods the presumably large accumulations of data were analyzed. Indeed none of the data themselves are presented in either a technical or nontechnical manner to buttress the vast array of generalizations found in it. There is no discussion of the fundamental and difficult problems of the reliability of the supposedly many observations made by the author. The materials consist in a jumble of everyday common sense, Freudian theory, conclusions based on single cases supposedly typical, and references to the primitive customs of the Sioux Indians, South African tribes, European peasants and negro mammies.

Not only is the reader left completely uninformed about the methodology employed in the studies, but as far as can be judged from the materials presented in the volume, not one of the research objectives stated in the opening paragraphs of this review has been realized in any acceptable systematic manner. To realize them will require a set of well designed, carefully conducted experiments continuing over a considerable period. They represent a possible program for diligent investigation before any empirically founded generalizations can be asserted.

If this book is to be regarded as a popular presentation it will be misleading to the average reader, for it gives merely the aura of scientific sanction without its substance. A popular treatment need not be inconsistent with scientific carefulness. This book presents many statements for which there is as yet no scientific verification. Many of the views expressed indeed may make an appeal because of the sentimental concept of mothering and because of the bizarre claims for it. The book will probably be popular with a section of the psychologically unsophisticated public, it will annoy every rigorous minded investigator who will regard it as below standard both as an example of research and of popular writing about scientific matters.

ORVIS C. IRWIN

Iowa Child Welfare Research Station

DEUTSCH, HELENE. *The psychology of women: Vol. I.* New York: Grune and Stratton, 1944. Pp. xiv + 399.

In the author's own words, "The purpose of this book is to explain the normal psychic life of women and their normal conflicts" (x). The data on which

she bases her conceptions of the normal woman, however, are drawn from her psychoanalytic practice, supplemented by arm-chair interpretations of such historical abnormalities as George Sand, and various literary creations.

The plan of the book is a detailed exposition of the development of the so-called feminine personality. Starting with *prepuberty*, the reader is led through *early puberty*, to *puberty and adolescence*, with a separate chapter devoted to *menstruation*. By this time he is presumably ready for initiation into the mysteries of *eroticism*, *passivity* and *masochism* which lay bare the adult female psyche. The concluding discussions concern deviants from the *normal* course of development in the form of *active* women and homosexuals. The main emphasis throughout the book is on internal, biological process rather than external, social force. A sole, final chapter is devoted to *the influence of the environment*, and even this is little more than an attempt to prove how little influence is exerted by the environment and a declaration of faith in the eternal biological verities.

As a contribution to understanding the psychodynamics of certain forms of neuroticism to which women in our culture seem prone, Dr. Deutsch's book may well contain many valuable insights. The reviewer does not feel qualified to judge. As a contribution to the scientific understanding of normal women, Dr. Deutsch's book had better not be taken too seriously. Once again, the psychologist is confronted with all the familiar weaknesses of Freudianism. Although her data are admittedly *cases* and her methods, *intuitive* without the slightest attempt at quantification or control, the author does not hesitate to generalize her observations from the sick to the healthy woman. Such generalizations are always misleading and may result in a flagrant devaluation of woman's contribution to social welfare. The following quotation speaks for itself:

Only psychoanalysts ever learn that progressive girls who sometimes participate in the struggle for woman's political emancipation, and give lectures on the need for the sexual enlightenment of children, still cling in their unconscious to the theories of early childhood, deny anatomic differences, retain the anal idea of childbirth, and base their ideas of sex on the sadistic conception of coitus" (118).

Another Freudian *slip* that Deutsch is guilty of is a dogmatism in the statement of hypothetical points which lends them a false aura of established fact. The merest hunch is expressed with the abandon of the fictionist whose ingenuity is not in the least hampered by truth. One can hardly fail to admire the imaginative display which has created nearly 400 pages on a topic which a scientific account would exhaust in a quarter of the space. Among the innumerable statements confidently made without a shred of evidence, we find, "... woman's intellect, her capacity for objectively understanding life, thrives at the expense of her subjective, emotional qualities" (143). And in the same vein, "... intuition is God's gift to the feminine woman ... all observations point to the fact that the intellectual woman is masculinized" (291).

While the psychologist has tolerantly and often generously accepted the psychoanalyst's fanciful *closing the gap* in the absence of fact, his patience comes to an end when fancy persists in the face of contradicting fact. This unpardonable breach of scientific code occurs repeatedly throughout *The Psychology of Women*. Dr. Deutsch's thinking seems to be so circumscribed by the psychoanalytic solipsism that she is apparently unaware of the vast world of psychological research outside. For example, in her evaluation of the psychological importance of menstruation, she cites her own work and that of other analysts almost exclusively. The only experimental study to which she refers

is that of Benedek and Rubenstein whose findings are too good to be accepted as true without verification. Ignoring the work of Landis, Brush, et al., she is still making statements that have long since been disproved: "All observations suggest that, whether or not the girl is given intellectual knowledge, even when she has the best possible information about the biologic aspects of the process, and despite its wish-fulfilling character, the first menstruation is usually experienced as a trauma" (157). Another anachronism to which the author clings is the assumption that the continuation of normal activities during menstruation represents resistance to femininity.

Deutsch's ignorance of medical as well as psychological work appears again in her biological interpretation of sexual frigidity. No one who is familiar with the results of Dickinson's half-century of gynecological practice could say, "our understanding of feminine frigidity . . . can be complete only if we take into consideration the fact that there is a constitutional inhibition that has no parallel in men" (185).

Statements that are unverified are bad; those that have been disproved are worse; but statements that can never be proved or disproved are by far the worst. When we are told that "later we shall see how sexuality and motherhood are often in absolute emotional contradiction, and how they nevertheless merge in the deeper and unconscious life of the soul" (148), the scientist knows that he has no place here either as student or critic.

What causes the social psychologist the most concern in the present volume is the author's underestimation of the role of environment in the psychology of women. In the repeated referral of feminine behavior to presumed constitutional factors lies the danger of an unwarranted pessimism regarding women's potential contribution to postwar society. In attempting to explain women's inferior intellectual showing in comparison with men, obvious differences in stimulation and opportunity are overlooked in favor of the fantastic notion that "the feeling of insecurity in creative activity corresponds to the deep-rooted need of woman to be fecundated from outside in order to be creative" (132). The author again defies the law of parsimony by attributing feminine passivity to the girl's realization of her inadequate sexual apparatus rather than to social training. In line with her assumption of an essential passivity is her *Kinde-Kuche-Kirche* conception of the postwar woman. She believes that "the majority of women whom war has made more active than ever, will return as quickly and energetically as possible to the basically conservative *because of always dominant feminine experience, regardless of social and cultural upheavals*" (386, italics mine). The fact that many employed women will return home is probably true. The reason, however, is probably not the one given by Dr. Deutsch. The findings of biology, anthropology and psychology have consistently failed to reveal constitutional sex differences which would justify casting men and women in different social roles. The reason why women in Western culture have continued to play the passive, domestic role should be sought in the structure of the culture rather than in the individual.

In spite of its obvious scientific flaws, *The Psychology of Women*, written in a fluid, non-technical style, and supported by all the prestige of an established psychoanalyst, can hardly fail to influence the intelligent layman. In this fact lies a grave threat to any program of postwar social planning which aims at a fuller sharing of men and women in all areas of living.

GEORGENE H. SEWARD

Connecticut College.

LEPLEY, RAY. *Verifiability of value*. New York: Columbia Univ. Press, 1944. Pp. ix + 267.

The central thesis of this book is that, contrary to the widely-held view, value judgments are verifiable in the same manner and to much the same extent as are propositions about facts. The author, finding that a spirit of open inquiry is gradually emerging in our society toward problems of social and international relations, and feeling that greater extensions of this experimental attitude in these areas must be realized if mankind is to achieve lasting freedom from conflict, seeks to develop the implications of this spirit for social action and to justify the testing of values which it implies. If values can be verified and men are willing to put them to the test and abide by the results, as is done in science, conflicts can be resolved and human energies rescued from wasteful tension and strife. The central topic of the study, therefore, is the nature and extent to which verification is possible in the fields of social, artistic, and religious values. The author concludes from his analysis that value judgments can be analyzed and tested for adequacy in much the same way as statements about facts.

To establish this point of view, detailed analyses of factual and valuative judgments in science, art, and morals are carried out. After distinguishing between various meanings of the term *value*, the nature of verification of propositions about facts and values is examined and a comparison made between the processes in the two cases. Consideration of simple problems indicates that the same general pattern of verification is present in morals and art as in science. Values are testable in much the same manner as facts. There do not appear to be absolute differences in verifying propositions about facts and propositions about values. But even though the verifying process is in essence similar, there may be differences in the degree to which factual and value judgments may be verified. A series of empirical analyses of the degree of verifiability of propositions about facts and values in science, art and morals reveals that facts and values are equally verifiable though moral facts and values are probably less verifiable than scientific facts and values. All types of values are potentially equal in verifiability and unverifiability. In their own ways, art and morals may be as experimental as science.

Though this viewpoint be accepted in the large, it is evident that a more detailed analysis and examination of the characteristics of the processes involved in the enterprises of science, art and morals is called for as the process in each area has its own peculiar character. The author devotes four chapters to an analysis of characteristics which have often been taken as characterizing facts as opposed to values and as forming the basis for the antithesis of the two. He analyzes the concepts of qualitative and quantitative, descriptive and normative, factual and creative, and objective and subjective. His general conclusion is that these characteristics of facts and values respectively are not absolute and do not sharply separate the two. On the contrary, all these properties which contrast superficially are found on examination to be present in fact-finding as well as value-judging activities. Distinct in their own ways, these activities involved in fact-finding and in value-judging are not intrinsically different and the properties listed above which are generally constitutive of them are more the effects of slightly different directions of attention and emphasis in formulation and testing than of basic variance.

Analysis of the ontological status of facts and values shows them to have a similar status in reality and to have determinate bases in the actual character of events. The study closes with a discussion of the consequences for action in

the social sphere which the adoption of an experimental attitude toward values would have and the social benefits which would accrue.

In following the course of ideas in this work it is extremely important for the reader to note that the author is dealing primarily with *instrumental* values. When we say that object is good for something we attribute value to it by virtue of this characteristic. The author reveals the type of value which he is dealing with when he says, "We shall suppose that problems . . . are valutive in which the interest is mainly in events as means to other events" (24) and in the examples he selects. In the case of this type of value verification is a straightforward though undoubtedly in many fields a novel process: with standards agreed on, the degree to which the object, the means, achieves the events desired, the ends, is examined. The object's value is relative to its accomplishment and to the importance of achieving it. But with *intrinsic* values this does not appear to be the case at all. When we find that an object is good in and for itself, as is apparently the situation with the beauty of a work of art or the characteristics we prize in human personality, we appear to be making a different kind of statement than when we attribute instrumental value and verification does not seem relevant. The author does not deal with the question of whether verification is relevant at all for intrinsic values; one notes that he states that a future work will deal with the *translation* into factual terms of statements denoting intrinsic values as well as instrumental, so we take it that he is aware of the problem. Recognizing that the author is really dealing only with instrumental values, his analyses are acceptable and his conclusions generally appear justified. However, the meanings of many key concepts is not too clear—*adjustments*, *total adjustment courses*, and *interest events* for instance—and probably only the reader who accepts and understands the philosophy of Dewey and his followers will feel completely satisfied.

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WOODWORTH, R. S. & SHEEHAN, MARY R. *First course in psychology*. New York: Henry Holt, 1944. Pp. viii + 445.

This book was written specifically for high school students to fill the need portrayed by the American Youth Commission in its 1940 report to the American Council on Education. However, with only little supplementing it could serve adult education classes on the non-collegiate level. This reviewer has not found a more adequate and sensible discussion of reading, learning, and memorizing in relation to studying than chapters III to VIII; these parts at least would be useful for the freshman orientation shelf in college.

The 27 chapters make convenient weekly units for a full year's course, but the authors outline lists of chapters for half-year courses in general psychology, mental hygiene, guidance, and a course stressing the psychology of learning. This book is a complete psychology with all the topics ordinarily discussed plus a few additions like propaganda analysis and vocational guidance. The order of topics is seemingly random, but many cross-references help to correlate the parts of the book.

The style is lively and direct with an urbane humor and reserve that keeps it from *talking down*. Many fresh examples from literature and current public and school life, including the war, make interesting reading.

A serious problem for psychology, in common with other subjects, in the high school is the probability that its teachers may not always have specific training and background for the subject. Realistic evaluation of a text should include consideration of whether it is true enough and complete enough to support the teacher who leans heavily on it. Woodworth and Sheehan is clear and definite and to make the meaning unmistakable, every chapter is ended with a complete summary where the important words are italicized and also included in a glossary at the back of the book.

This is applied psychology with investigators unnamed and practically no explicit experiments and theory. Beyond the authoritarian assurance of the writers the evidence for points is mostly analogy or appeals to personal experience. The interesting exercises are more observational and literary than experimental. Woodworth and Sheehan may well have hit upon the formula for a successful high school psychology: Give the high school student a complete applied psychology which emphasizes its relation to his experience, and leave for the college course the systematic study of theories and critical examination of supporting experiments. Too many of the high school texts are simply watered-down replicas of the college subject, so fragmentary that they give neither a good foundation nor have practical value. One hears chemistry professors say that they prefer a naive student who has no high school chemistry to unlearn. And then there are the complaints of students that the college course is "just like the one in high school." Neither of these complaints would follow use of this text.

The big lack in the book is the total absence of references or suggestions for further study. There is an excellent bibliography for wide reading on vocations, but no suggestions for the inquiring student or, perhaps even more, for his teacher to go beyond the text. At least the authors should provide teachers and high school librarians with a selected list of non-technical psychological books. The regular psychological journals are formidable and to a large extent barren for the uninitiated; college textbooks usually need the lecturer's presence to vitalize them; the high school student with his interest aroused and with the good psychological vocabulary gained from this book has, unless adequate sources are pointed out, nowhere to go except the sometimes questionable psychological column of his newspaper or the popular magazines with *psychology* in their title.

Woodworth and Sheehan as authors of the first complete psychology for the high school have pioneered so well that they speed the day when psychology will be a part of the revised high school curriculum.

GEORGE M. HASLERUD

University of Tennessee

HOFF, PHEBE M., HOFF, E. C., & FULTON, J. F. *A bibliography of aviation medicine: supplement*. Prepared for the Committee on Aviation Medicine, Division of Medical Sciences, National Research Council, Acting for the Committee on Medical Research, Office of Scientific Research and Development. Washington, D. C. Springfield, Ill.: Charles C Thomas, 1944. Pp. xiv + 109.

So much literature on the scientific aspects of flying has appeared in the two years since *A Bibliography of Aviation Medicine* (reviewed in *Bulletin*, 1942,

39, 796) was sent to press that a Supplement has been necessary. This Supplement which contains 2,336 entries follows the plan of the original publication with the addition of new sub-headings on *Survival and Rescue* and *Rehabilitation*. Although most of the articles cited center in the practical problems that arise out of war needs, much fundamental research is going forward.

JOHN E. ANDERSON

University of Minnesota

NOTES AND NEWS

FLEMING ALLEN PERRIN, professor of psychology, University of Texas, died Dec. 1, 1944, at the age of sixty years. Professor Perrin received his Ph.D. from Chicago in 1913 and was instructor (1912-14), and assistant professor of psychology (1914-17) at the University of Pittsburgh. He was adjunct professor (1917-25) and professor of psychology (from 1925 on) at the University of Texas.

JOHN MADISON FLETCHER, professor emeritus of psychology, Tulane University, died of a heart attack, Dec. 12, 1944, at the age of seventy-one years. He had served as lecturer in psychology (1911-12) in Clark University; as assistant professor of experimental and clinical psychology (1912-14), professor of psychology and head of the department (1914-24), head of the department of education (1919-23), acting dean (1919) and dean (1920-24), Graduate School, in Tulane University; as professor of psychology and lecturer in medical psychology (1924-28) in Vanderbilt University, and as professor of psychology (1928-38) in Tulane University.

GEORGE TRUE AVERY, for the past two years director of training at the Joshua Hendy Iron Works, Sunnyvale, California, died Dec. 26, 1944, of coronary thrombosis, at the age of sixty-four years. Dr. Avery was formerly dean of the summer session and professor of education (1924-42) at the Colorado College of Agriculture and Mechanic Arts (Fort Collins), where he had served since 1917 [assistant professor of psychology and education (1917-19); and associate professor of psychology (1919-23)], except for one year (1923-24) when he was acting professor of psychology at San Jose State Teachers College.

C. L. SHARTLE, chief, Division of Occupational Analysis, USES and WMC, has been appointed coordinator of personnel research and professor of psychology, the Ohio State University.

IRVING LORGE, executive officer, division of psychology, Institute of Educational Research, Teachers College, Columbia University, whose service as expert consultant to the Army Specialized Training Division of the War Department terminated on Sept. 1, has been appointed expert consultant to the Adjutant General's Office of the War Department, and is also serving as consultant in adult education for the extension service of the U. S. Department of Agriculture.

VIRGINIA W. LEWIS has been appointed director of the child-guidance clinic in the public schools of Phoenix, Ariz.

PHILIP KITAY has been appointed instructor in psychology, the University of Delaware.

GEORGE R. BACH, former research associate in the Iowa Child Welfare Research Station, has been appointed an instructor in psychology at Western Reserve University (Cleveland, Ohio).

HELEN SHACTER, formerly assistant professor of psychology at Northwestern University, is now chief psychologist at the Veteran's Rehabilitation Center in Chicago.

MILTON H. ERICKSON, director of psychiatric research and training at Eloise Hospital (Eloise, Mich.), has recently been promoted to the additional position of associate professor of psychiatry at the Wayne University College of Medicine (Detroit, Mich.).

CHARLES W. HOWARD, professor of education and psychology, Whitman College (Walla Walla, Wash.), has been appointed dean of the college and professor of psychology, Lewis and Clark College (Portland, Ore.). J. JERRY FOGARTY, former director of education in a War Relocation Camp in Idaho, has been appointed associate professor of education to succeed Dr. Howard.

JOSEPH C. HESTON, instructor in psychology, De Pauw University (Greencastle, Ind.), has been appointed director of the university's Bureau of Testing and Research, which was recently created "to afford a centralized . . . service for both routine group and individual tests in the areas of educational achievement, vocational guidance, and personality adjustment."

The Department of State has granted MUZAFFER SERIF BOSOGU (known in this country as MUZAFFER SHERIF), professor at the University of Ankara, Turkey, a two-year fellowship to work in the department of psychology of Princeton University on a systematic social psychology. Professor Sherif, who studied at Harvard and Columbia Universities and received his Ph.D. degree from the latter university, is best known for his book *The Psychology of Social Norms*. He is also the author of several books in Turkish.

AGNES SHARP is now a psychological consultant for the A. B. Dick Company, with responsibility for formulating policies and suggesting changes in procedures which may be of value for the psychological welfare of the employees. She has secured a year's leave of absence from her position as Chief Psychologist of the Psychiatric Clinic of the Municipal Court. Mr. CARL PETERSON is filling the vacancy created there. Dr. Sharp is retaining office hours for private practice in consulting psychology in the Willoughby Tower Building, 8 South Michigan Avenue, Chicago.

T. C. SCHNEIRLA, associate curator in the department of animal behavior of the American Museum of Natural History, New York, and associate professor of psychology at New York University, left the second week in November as Fellow of the John Simon Guggenheim Foundation for southern Mexico, where he will conduct field investigations of army ant behavior in the rain forests of that region. Dr. Schneirla's previous investigations of *Eciton* behavior patterns have been confined to work carried out during the rainy season at Barro Colorado Island and elsewhere. From December through April he plans to examine the effects of dry-season conditions upon the reproductive cycle and its relation to raiding and colony movement.

The *Inter-Society Color Council* of which the APA is a member, will hold its 13th annual meeting Feb. 23 and 24 at the Pennsylvania Hotel in New York City. Friday afternoon will be devoted to reports on the *Illuminant in Textile Color Matching*, and *Distribution of the Primaries in Daylight*. Saturday morning will be devoted to a session sponsored by the American Artists Professional League on *Color from the Standpoint of the Artist*, with four talks, exhibits and an open discussion. Saturday afternoon a business session will be held. Official delegates and other interested members of the APA are invited to attend.

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